

AMERICAN *Cinematographer*

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY

25c

FOREIGN 35c



AUGUST
1948



For stills that sparkle...



Still photographers and hobbyists in many leading picture studios choose these popular Du Pont "Defender" Papers for rich quality contact prints and enlargements.

"DEFENDER APEX" — ideal for contacts, 4 grades of contrast, 10 surfaces.

"DEFENDER VELOUR BLACK" — for striking enlargements — 4 grades of contrast, 17 surfaces.

"DEFENDER VELLURA" — produces warm tone, prints — normal contrast, 3 surfaces.

"DEFENDER VARI-GAM" — provides variable and complete contrast control in one paper. *Prints available in sets of five or ten.*

Try these fine papers. They'll help you create finished photographs of salon calibre. Ask your dealer for "Defender" papers in the blue and yellow box.

E. I. du Pont de Nemours & Co. (Inc.)
Photo Products Department
Wilmington 98, Delaware
NEW YORK • HOLLYWOOD • CHICAGO

FREE 36-page booklet: Du Pont Photographic Papers. Contains general printing information, descriptions, processing data, and surface charts of actual paper finishes. Write to Dept. C-1 for your free copy today.

DU PONT PHOTO PRODUCTS



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

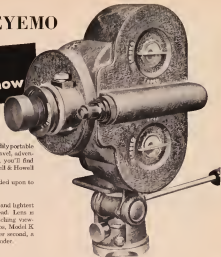
BELL & HOWELL EYEMO

OKed
by men who know

Whenever the assignment calls for a readily portable 35mm camera, whether it's newsreel, travel, adventure, documentary, or industrial work, you'll find that most cinematographers choose a Bell & Howell Eyemo.

Why? Because Eyemo can be depended upon to get the picture . . . and get it right!

EYEMO MODEL K (right) is the simplest and lightest of all the Eyemos. Has single-lens head. Lens is quickly interchangeable, as is the matching viewfinder objective. Like all current Eyemos, Model K has a speed range of 8 to 48 frames per second, a hand crank, and a positive-type viewfinder.



♦ **EYEMO MODEL M** has a compact, three-lens turret head. Finder is matched to the lens in use by turning the finder objective turret.

EYEMO MODEL Q has three-arm offset turret, prismatic focusing magnifier (for direct viewing through the lens), and provisions for adding external film magazines and electric motor drive.



Eyemos are sold only direct to you from the B&H factory or branch offices. Bell & Howell Company, 7148 McCormick Road, Chicago 45. Branches in New York, Hollywood, Washington, D. C., and London.

For 16mm Professional Work
it's the new
FILMO 70 SPECIALIST
Write for **FREE** Illustrated Literature

Produced Made by

Bell & Howell

Since 1907 the Largest Manufacturer of Professional Motion Picture Equipment for Hollywood and the World

Auricon-Pro

16 mm Sound-On-Film Camera



Designed in Hollywood for the discriminating movie maker. Camera (less lens) priced from \$1295.00 complete with amplifier microphone tubes, belt timer, headphones and instructions. See your dealer or write today for full description.

Features...

- ★ Records talking pictures in black and white or color
- ★ Completely silent in operation, self-blump, no noise for recording microphone to pick up
- ★ Vee-der-Rock geared metal foot age counter
- ★ Auto-Parallax View-Range Finder available
- ★ Synchronous motor drive
- ★ Rugged Auricon "Iron Vane" sound track recording galvanometer with remote adjustments

BCA Licensed
High Fidelity Stereo Sound-On-Film
Guaranteed One Year



BERNDT-BACH, Inc.

7380 Beverly Blvd., Los Angeles 36, Calif.

MANUFACTURERS OF SOUND-ON-FILM
RECORDING EQUIPMENT SINCE 1931

Hollywood Bulletin Board



ARTHER EDISON (left) presiding as president pro tem of the A.S.C.'s July banquet and meeting (second from left) Curtis Edmery, Bob Harris, A.S.C. and producer Pauline Krimm—all of M-G-M—for their signatures in the banquet's guest book. Kelly Edmery and Krimm were guests of honor.

LEN ROGGS, A.S.C., in association with the Hallen Development Company, Burbank, Calif., has developed a new portable magnetic tape recorder that utilizes flux coated 16mm film. Recorder can be interlocked with 35mm or 16mm sound cameras for recording sound, and provides a sound track that can be immediately played back. This feature also makes the recorder particularly useful for television newscasting. Recorder mechanism is gear driven and will remain in synchronization with any motion picture camera equipped with a synchronous drive.

TOM TUTWILER, A.S.C., in Nome, Alaska, on an aerial shooting assignment for Apex pictures, has been grounded the past several weeks because of bad weather. Earlier, he had been in Greenland for the same company. Regarding the footage he shot there, Harry Poppe, of Apex, recently wrote Tutwiler: "Yesterday we ran off two and a half reels of the film you shot. Believe me, it is the most profound, awe-inspiring and beautiful material of its kind I have ever seen on the screen."

Tutwiler has still about two months of air shot to do in Nome, then goes into a ground picture elsewhere in Alaska. He reports he's booked solid until about arch, 1949.

HYPERSENSITIZING its film has enabled Cinecolor to reduce production costs of films made in that medium, so that



HOW HERSCOLT, Past of Academy of M. P. Arts & Sciences an actor visit to England, personally presented Jack Cardiff A.S.C. (right) with "Oscar" he won for Best Color cinematography for 1947 "Black Narcissus". On hand to congratulate Cardiff was J. Arthur Rank, (center).

today shooting in Cinecolor costs but 10% more than producing the same film in monochrome. Cinecolor executives revealed the new development at a recent banquet honoring members of the motion picture industry's Art Directors Guild. While the company's president refused to

(Continued on Page 209)

IN MEMORIAM David Work Griffith

in appreciation for his great contributions to the art and advancement of cinematography

THE AMERICAN SOCIETY OF
CINEMATOGRAPHERS

... credit the
man, too.

IT IS POSSIBLE, we believe, for cinematographers to want to know who photographed a motion picture, just as they are also interested in who directed it. For just as they have come to know that the name of Hitchcock on a picture means guaranteed entertainment, many also know that certain Directors of Photography have well established reputations for imparting correspondingly personal quality to a picture.

Whether or not the time will come when the Director of Photography's name will receive equal billing in reviews, in advertising copy and on billboards, we do not know, but it seems that there is every justification for film critics to give more than passing recognition to the artistry of the Director of Photography when writing the review of a picture.

A case in point is *Fort Apache*, which is chiefly notable for its unusual dramatic photography by Archie Stout, A.S.C. Recently, motion picture critics on the New York dailies in reviewing this picture acclaimed the photography but omitted mentioning Stout's name, although credits of the producer, writer, stars and the director came in for the usual comment.

One of the dominant aims of the A.S.C.'s public relations department hereafter, will be to make the members of the fourth estate as conscious of the artistry behind the camera as they are of the camera itself.



AMERICAN SOCIETY OF CINEMATOGRAPHERS

OFFICERS AND BOARD OF GOVERNORS

CHARLES G. CLARKE, *President*
FRED W. JACKMAN, *Exec. V.-Pres. and Treas.*
ARTHUR EBERSON, *First Vice-President*
ALFRED L. GILLES, *Second Vice-President*
WILLIAM V. SCALL, *Third Vice-President*
RAY BISHOPMAN, *Secretary*
JOHN W. BOYLE, *Sergeant-at-Arms*
John Arnold
Sol Polua
George Tobey
Charles Risher
Lee Gardner
John Sore
Leslie Shumway
Joseph Walker

ALTERNATE BOARD MEMBERS

Malvin Krasner
Sol Halprin
Arthur Miller
Hal Mohr
Joseph Razumberg

AMERICAN Cinematographer

THE MAGAZINE OF MOTION PICTURE PHOTOGRAPHY

ARTHUR E. EBERSON, *Editor*

ESTHER YOFF, *Assistant Editor* Technical Editor, EMERY HUSE
GLENN E. KREIDMER, *Art Editor* Circulation, MARGUERITE DORR
EDITORIAL ADVISORY BOARD: Fred W. Jackman, A.S.C., John Arnold, A.S.C., Arthur Eberson, A.S.C., Lee Gardner, A.S.C., Charles Risher, A.S.C., Les Shumway, A.S.C., Fred Gage, A.S.C., Dr. J. S. Watson, A.S.C., Dr. L. A. Jones, A.S.C., Dr. C. E. K. Mees, A.S.C., Dr. V. B. Stone, A.S.C., Col. Nathan Levinson

Editorial and Business Offices: 1782 N. Orange Dr., Hollywood 28, Calif.
Telephone: GRAnite 2135

VOL. 29

AUGUST • 1948

NO. 8

CONTENTS

Articles

DRAMATIC PICTORIALISM WITH INFRARED FILM—By Archie Stout, A.S.C.	265
TRANSITION LENS FOR TELEVISION CAMERAS—By Frederick Foster	266
THE NEW "SPECTRA" MEASURES COLDER TEMPERATURE—By Fred Gage	267
THE STORY OF FILMING "ACT OF VIOLENCE"—By Robert Sarnes, A.S.C.	268
3000 FRAMES PER SECOND!	269
MUSIC FOR MOVIES—By Herb A. Ephraim	270

Features

HOLLYWOOD BULLETIN BOARD	269
KEEPING UP WITH PHOTOGRAPHY	262
CINE KINGS FOR MOSTE AMATEURS	278
BOOKS YOU'LL WANT TO READ	282
25 YEARS AGO WITH A.S.C. AND MEMBERS	284
CURRENT ASSIGNMENTS OF A.S.C. MEMBERS	286

16mm. & 8mm. Section

THE CAMERA'S POINT OF VIEW—By Charles Loring	273
GRAND OPERA IN 16MM.—By Edward Nicholas	274
AMATEURS MAKE MOVIES THE HOLLYWOOD WAY—By Ralph Laursen	276

ON THE COVER

DURING a full in the shooting of *Act of Violence*, at Metro Goldwyn-Mayer studios, Bob Sarnes, A.S.C., close with Janet Leigh, one of the picture and one of M.G.M.'s brightest luminaries. Sarnes' story on the many unusual production angles of the film begins on page 268 of this issue.

AMERICAN CINEMATOGRAPHER, established 1920, is published monthly by the A.S.C. Agency, Inc., 1782 N. Orange Dr., Hollywood 28, Calif. Entered as second class matter May 15, 1937, at the postoffice at Los Angeles, Calif., under act of March 3, 1879. SUBSCRIPTIONS: United States and Pan American Union, \$2.50 per year; Canada, \$2.75 per year; Foreign, \$3.50. Single copies, 25 cents; back numbers, 30 cents. Foreign single copies, 35 cents; back numbers, 40 cents. Advertising rates on application. Copyright 1948 by A.S.C. Agency, Inc. AUSTRALIAN REPRESENTATIVE: MAC BULL, 179 Elizabeth St., Melbourne.

For

- ... students of cinematography
- ... movie amateurs
- ... professionals



ORIGINAL 1ST EDITION AGAIN AVAILABLE!

The A. S. C. has awarded a limited number of copies of the 1st edition of THE CINEMATOGRAPHIC ANNUAL—a real collector's item!

Compiled and published in 1950 this 600 page, luxuriously bound book contains much information on basic motion picture photographic techniques, both professional and amateur that is sound practice today as well as a comprehensive history of the development of motion picture equipment. Professionals will want it for its historic value as well as for the information it contains. Others will find it a constant source of information and facts concerning the production of motion pictures. No other book ever written contains so much data supplied by the professionals of Hollywood's motion picture studio.

Cinematography at Cinematography, California in Motion Pictures, by Don Clark, A.S.C. Focusing, Shutter Light, by Victor Meyer, A.S.C. Light, Focus in Cinematography, by Ned Van Buren, A.S.C. Art in Motion, by Max Factor. Motion Picture Studio Lighting, Sound Recording, Micro Cinematographic Apparatus, Lensed Facts and Formulas—these are but a few of the subjects covered in this book, written by the highest paid technical talent in the motion picture industry.

A MUST FOR YOUR LIBRARY OF TECHNICAL BOOKS

It finds on file almost every important trend of photograph illustrations and found in other literature. This book could not be purchased today for anywhere near this special price listed.

\$3.50

Postpaid

MAIL THIS COUPON TODAY!

American Society of Cinematographers
1782 No. Deane Dr.,
Hollywood 20, Calif.

Customers: Enclosed find \$3.50 for which please send me a copy of the CINEMATOGRAPHIC ANNUAL.

Name _____

Address _____

City _____

Zone _____

State _____

NOTE: Foreign remittance must be made by International Money Order or in currency of the U. S.

Keeping up with

PHOTOGRAPHY



FALL TRAMP ABC chills with Lew Ayres and Jane Wyman stars of W.P.A. "Johnny Belinda," before going aloft in helicopter for unusual ending scene for picture.

Helicopter Shots

For the first time in the history of the company, Warner Bros. used a helicopter for mass and establishing shots for "Johnny Belinda," Jane Wyman-Lew Ayres starring picture.

Director Jean Negulesco employed a helicopter pilot and cameraman to fly over the town of Ft. Bragg and Mendocino, California. Ex-army pilot Knar Flint, who had much experience in making scenes with a helicopter during the war, was at the controls while Paul Ivano manned the camera. Dipping into the streets, market-places and outlying sections of the two towns as their residents went about their normal business. Negulesco thus brought to the screen an entirely new approach to film making.

By using the helicopter, crew members were able to dispense with countless parallel set-ups, the time given the huge towers from which cameras are usually raised. Less static than the old method of photographing large mass scenes, use of the camera-mounted helicopter enabled Negulesco to follow moving shots as well and in addition to "freeze" the camera at any height or 10 feet or more.

In the opening scene of the film Director Negulesco tried to establish the point that the locale of the story was a cliff-lined island. The helicopter simplified his problem. Ivano and Flint followed the course of a wave into shore. Then as the helicopter neared the cliff-lined beach the plane rose to the top of the cliff, catching the whole action on film. In another sequence Ivano and Flint hovered above a small fleet of fishing boats as they came into Noyo Harbor near Ft. Bragg. The cameraman on the docks picked up the action of the boats as they dropped anchor. Most of the scenes were shot in

altitudes ranging from 2500 feet to a few feet from the ground.

Framing shots from a flying helicopter necessitated a special stabilizer on the plane to maintain perfect balance. Flint, although used to flying airplanes, found that piloting a cameraman presented new problems. It took some practice before Flint could turn, rise or drop when cameraman Ivano required it. However, with patience the men became an expert team.

The ability of a helicopter to fly backwards and gun aloft at the same time was employed in photographing the final scene of "Johnny Belinda." The scene is a traveling shot showing a buggy being driven along the rugged coastline. The camera pulled back and up going out to sea. The buggy needed further and further as the distance leaving as a final impression only a small segment of earth on which the story was played.

Photosensitive Glass

A technical article descriptive of the development, characteristics, and application of photosensitive glass appears in the July 1948 issue of the PSA Journal. The author is Dr. S. D. Strook, research chemist, Corning Glass Works, Corning, N. Y.

Photosensitive glass is described as an optically homogeneous medium having the properties of typical clear glass, yet capable of incorporating a photographic image after exposure to ultraviolet light and to heat. Controlled colors of images include red, yellow, blue, purple, and amber.

Applications are found in the fields of portrait and scenic photography, jewelry, masks, windows, optical instruments, instrument dials, lantern slides, sound tracks, and lighting devices.

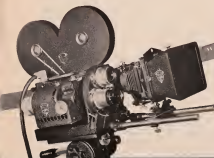
Color Expert Honored

For his research on photographic dyes Dr. Leslie G. S. Brooker, Kodak Research Laboratories, has received the 1946 Honorary Award of the Royal Photographic Society of Great Britain. Dr. Brooker, who is the fourth Kodak scientist in Rochester to win the award.

His discovery of a large variety of sensitizing dyes brought a tremendous change in photography. Production of an improved panchromatic film was possible. Film could be made with almost any type of special sensitivity. Dr. Brooker's research made Kodachrome film possible because it provided the dyes for sensitizing various layers on color films. ★ ★ ★

The great films of
Today are shot with
a *Mitchell* *

The MITCHELL STUDIO MODEL "BNC" is a truly silent camera for sound photography. No blimp is required. Its smooth, positive operation saves many costly hours of production time. Since the introduction of the "BNC," more and more major studios have made it standard equipment.



"35 mm QUALITY ON 16 mm FILM"

The MITCHELL "16" is enthusiastically acclaimed by leading commercial producers as the first professional camera to bring theatre-like quality to the 16 mm screen. Typically MITCHELL in design and workmanship, it contains the same proven features that made MITCHELL cameras famous throughout the world.

Mitchell Camera CORPORATION

666 WEST HARVARD STREET • GLENDALE 4, CALIFORNIA • CABLE ADDRESS: "MITCAMCO"
EASTERN REPRESENTATIVE: THEODORE ALTMAN • 521 FIFTH AVENUE • NEW YORK CITY 17 • MURRAY HILL 3-7038



85% of the motion pictures shown in theatres throughout the world are filmed with a Mitchell

"The brilliant white light, controllability, carrying power, and the unprecedented light output from single lighting units, make the use of carbon arcs a very important factor in successful lighting for Technicolor photography."

WINTON C. HOCK
A.B.C.

WHEN YOU BUY
STUDIO CARBONS,
BUY "NATIONAL."

The term "National" is a registered
trade mark of
NATIONAL CARBON COMPANY, INC.
Unit of Union Carbide and Carbon Corporation

30 East 42nd Street, New York 17, N. Y.
Branch Sales Offices
Chicago, Boston, Kansas City,
New York, Pittsburgh, San Francisco



TWO SCENES from "Fort Apache," produced by Argyre Pictures, which demonstrate the striking pictorial effects achieved by use of infrared



Film and actors: All dramatic night shots in the picture were made with this film. Brown makeup and lipstick were used in the closeups.

THE NATION'S movie critics who have been so generous with praise for the photography in "Fort Apache," and the millions of cinemagoers who have seen the film to date probably do not know that a total of 10,000 feet of infrared film went into making the dramatic outdoor sequences that mark the picture.

In all probability there is more actual infrared footage in "Fort Apache," (2,800 feet in the final cutting) than in any other commercial production released to date.

The uses for infrared film are as varied as the types of present day pictures. It affords the progressive cinematographer many opportunities to achieve striking dramatic and pictorial effect shots that can be made in no other way. At the same time, it permits copying on smooth continuity of photography by using the same film in medium and cleanup shots.

John Ford's "Fort Apache," with so much of its action laid in the pictorially beautiful region of the great southwest, was particularly suited to the use of infrared film. The vast expanse of blue, cloud-flecked sky, when emphasized by use of this film and filters, provides a dramatic backdrop for the story's recurring action.

Normally, I found that the most advantageous light conditions for shooting infrared is a cross or slightly front cross light, using a stop of 1/32 to 1/8 and a 25A filter. Of course, this is not a definite

DRAMATIC PICTORIALISM WITH INFRARED FILM

Archie Stout, who filmed "Fort Apache," tells how infrared made possible the unusual dramatic day and night shots which feature the picture.

By ARCHIE STOUT, A S C

rule, but will give a working start that your rear box can prove or disprove in ten minutes, and result in making corrections to suit one's needs.

It may be interesting to note that the dawn sequence in "Fort Apache" in which the troops are seen moving across the desert was shot while a light rain was in progress, using a 25F filter and a stop of 1/3, indicating that the film is not restricted to use only in brilliant sunshine.

Probably the reason most Directors of Photography have not used infrared film more often is the fact that much of the first infrared was marked by terrible balance. For example, two rolls of early day infrared film shot at the same f/stop and under the same conditions—and within

an hour—would have a very wide difference in density, so much so, that they would be practically unusable. Such hazards do not prevail with present day infrared film. The density of the 10,000 feet used in "Fort Apache" remained quite constant throughout.

Other cinematographers may be interested in permanent facts concerning this far too little used film stock, some of which were obtained only after considerable trial and error.

In shooting closeups in which players appear, a very light brown makeup should be used in combination with dark brown make for the lips, instead of the customary red. The brown makeup prevents

(Continued on Page 205)



JOE WALKER recently dubbed the "wonderful" cameras in the motion picture industry, has come up with another lens innovation this time for television cameras. (Scene here mounted before test of Don Lee's telecameras; the lens affords distance or quick cuts between two image sizes.)

TRANSITION LENS FOR TELEVISION CAMERAS

The Duomar lens, developed by Joseph Walker, A.S.C., enables television cameras to make quick cuts from long shots to closeups.

By FREDERICK FOSTER

BEFORE we tell you about the new Walker Duomar lens for television cameras, perhaps we ought to tell something about its inventor, Joseph Walker, A.S.C.

His various picture applications in the fields of optics and electronics take up sizeable life space in Uncle Sam's Patent Office in Washington, D.C. Walker has many patents on motion picture processes and equipment, but humbly admits that only one ever brought him any real money. That was the patent covering a double exposure process using an imbibition print to form a travelling mat.

He also designed what was probably the first "zoom" lens for motion picture cameras in the early 1920's, although the term "zoom," as applied to lenses of this

type today, did not come into general use until sometime later. The European type zoom lens did not appear until many years afterward.

The Duomar is of different construction than the zoom type lens. It is essentially a lens with two fields of view, with the transition from one size image to the other being accomplished by simply moving a lever.

With customary modesty, Walker refuses to take all the credit for the idea for such a lens. The idea, he says, stemmed from a query posed by John H. Buffum, now a well-known Boston radio commentator, in whose employ he worked as a newswire cameraman many years ago.

"Joe," said Buffum, "I want you to develop something that will permit making

a quick switch from a long shot to a closeup, and vice versa — perhaps two cameras and lenses in a single unit, or better yet, two lenses of different focal length mounted on the same camera with some means of instantly changing from one lens to the other without stopping the camera.

Walker was using a Williamson camera at the time and he soon had a method figured out that would achieve the result suggested by Buffum. The camera featured an extra long aperture plate and film gate. Walker cut an extra aperture in the plate and fired a telephoto lens immediately above the regular camera lens, so that it would register an image on the film two frames above that of the regular lens. A sliding shutter was installed in the camera so that the aperture behind one lens could be closed simultaneously as the other was opened.

That to make a quick switch from a long shot to a closeup, a button was placed in the cameraman's command cranking, and the sliding shutter cut off the image from the short focal lens and opened the aperture behind the telephoto lens, permitting it to register an image on the film. The resulting blank frame between the switchover (or the single double-exposed frame, resulting when the switch was from closeup to long shot), was deleted at time of editing the film.

Walker had the first opportunity to put this idea to practical use when filming newsreel shots of President Wilson's inauguration. The event was a natural for demonstrating the effectiveness of this new cinematic innovation. Walker had his regular lens focused on the President

(Continued on P. 35)



TRANSITION is effected by moving lever (indicated by arrow) to one side of lens. Manual operation is used to be replaced by electric switch control. Controlling lever (arrow) is already adjustment of lens so it will automatically center on subject or scene when switched from long shot to closeup.

THE NEW "SPECTRA" MEASURES COLOR TEMPERATURE

A radically new direct-reading color temperature meter, developed by Karl Freund, A.S.C., takes the guess work out of light analysis.

By FRED GATELY

A NEW STAR has been born in the photographic firmament—one whose destiny it is to remove the final vestiges of guess work and mental gymnastics from the art of color photography. It is the Spectra, a direct-reading color temperature meter, designed and built by Karl Freund, A.S.C., and his Photo Research Corporation.

The term "color temperature" will do doubt stir in many with the feeling that we are dealing with an esoteric subject in the realm of physics. In the lexicon of the scientist, color temperature of a given source is the temperature to which a radiant black body must be raised to radiate the same spectral distribution of light. For the physicist who must deal with specifics this is a necessary definition, from the practical standpoint of the photographer who must deal with the color temperature problem is a routine phase of his work, it resolves itself down to: how yellow or how blue is my light?

The synthesis of light is readily apparent in its wide variations to any observant individual. We have all noticed the distinctly red color of the sun either very early in the morning when it is rising or when it is about to set in the evening, and



THE SPECTRA is used in the same manner as an incident light meter. It is merely a matter of pointing meter toward light source being examined, adjusting the diaphragm to the reference marker, focusing the trigger and taking the reading directly from the microammeter scale.

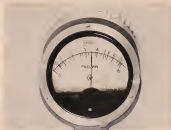
have seen how objects illuminated by the sun at that time have a distinctly reddish cast. We have observed a candle burning in a room illuminated by standard tungsten lamps, and accept as a natural thing that the candle seems yellow by comparison and, in turn, that the tungsten lamp will seem yellow in comparison with daylight if it be turned on in a room illuminated by windows. The tungsten lamp gives a light having a higher percentage of blue rays than candlelight, and the daylight has a higher percentage of blue rays than the tungsten.

In a thermal source the relative amounts of all wave lengths

(Continued on Page 278)



A RED FILTER rests between the diaphragm and the photo cell. Initial setting of meter indicates is based on red light rays passing through red filter is perfect. When trigger is depressed, blue filter replaces red and the light thus admitted is perceived becomes the ratio between the blue and the red.



AFTER METER is pointed toward the light, diaphragm is adjusted and indicator needle rests on reference marker, as shown here. When trigger is depressed, needle will move to left or right depending on the color temperature giving a direct reading. No additional calculations are necessary.



One of the many "sets" used in "Act Of Violence" was the interior of film dwelling in Santa Monica. Here Director of Photography Surtees lines up his camera for a shot through the front door.



FOR A FOLLOW shot as Robert Ryan rowing a boat. Two boats were lashed together and a platform laid over them to support camera and crew. An earphone meter supplied the motion power.



NOTE THE NATURALNESS of the background lighting in this shot which was supplied by several photoflood lamps mounted on distant telegraph poles—none of the usual Surtees lighting innovations.

The Story of Filming

'ACT OF VIOLENCE'

Reflected lighting, no makeup, natural locations and use of a 28mm. lens for all shots are some of the new production trends explored in the making of this picture.

By ROBERT SURTEES, A.S.C.

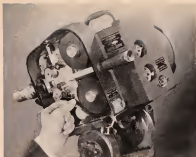
MUCH HAS been written lately about the trend towards realism in the photographic treatment of the modern documentary type—motion picture play. Therefore it was with anticipation of doing something unusual and different that I faced the assignment of photographing the Metro-Goldwyn-Mayer production, "Act of Violence." Here was a cameraman's picture, an ideal story written by Robert Richards in such a manner that the Director of Photography could blend the best of the documentary technique with a more dramatic approach than has been possible in other pictures to date.

This story was real and at the same time more dramatic than the usual so-called modern film. It was the one great opportunity to go beyond the realist school and combine it with a more imaginative treatment. The producer, Mr. William Wright and the director, Mr. Fred Zinnemann, were a constant and sympathetic pair to be associated with in this unusual experiment for Hollywood.

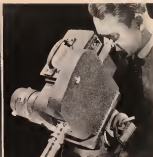
To understand fully one must know something about the plot of Act of Violence. Briefly, it concerns the pursuit of Frank Enley, a former officer in the Air Force, (Enley was portrayed by Van Heflin), by a crippled ex-sergeant, Joe Jordán (played by Robert Ryan). Jordán has only one purpose to live for and that is to kill Enley, because while they were prisoners of war together Enley had informed the Nazi Commandant of an escape planned by his buddies. All except Jordán had been shot in trying to carry through the plan. Jordán escapes and, after the war, starts searching for Enley who is now living as a respectable citizen in a small California city. Jordán finally catches up with him in Los Angeles and the hunted one escapes to hide among the derelicts of dead end streets like East Fifth, with all its human wrecks and wrens.

During all this, Enley knows he did wrong and also knows his number is about up, and on a surprise twist at the finish of the story he saves the life of Jordán and, in doing so, loses his own. All this action was staged in and around Los Angeles and was mostly night exteriors.

(Continued on Page 292)



THE SIDE of the Kodak High-Speed Camera opens in this manner for threading A 1/2-h.p., 32 volt universal motor is used to drive the film-moving mechanism, optical plate, and takeup spool.



COMPACT IN SIZE and weighing only 32 pounds the new Kodak High-Speed camera may be used in making motion pictures at speeds from 1000 to 5000 frames per second.

SEVENTY odd years ago Lehard Stanford engaged a San Francisco photographer to make a series of pictures which would conclusively answer the question of whether or not a galloping horse always kept one foot on the ground.

Quite possibly neither Stanford himself nor Edward Muybridge, the photographer, realized the significance of the project. In Stanford's case, certainly, it is known to have arisen from a wager, reportedly \$25,000 in California gold. But the fact remains that the Muybridge pictures represent perhaps the first extensive use of the camera to observe motion too fast for the eye to follow.

In making his pictures, Muybridge set up a row of 24 cameras. Their shutters were tripped by means of strings, broken by the horse as it galloped past. Despite the primitive nature of this set up, Muybridge's photographs proved beyond question that at one stage of a gallop all four hoofs are off the ground.

Muybridge's fundamental problem was one of synchronization. A similar problem exists today in making still pictures of fast moving objects. It was in part to solve this problem that the Eastman Kodak Company developed the first ultra-speed motion picture camera 16 years ago. This was the forerunner of today's Kodak High Speed Camera, widely used in industry, engineering, and research.

Such a camera, operated at speeds of 1000 to 5000 frames per second, provides a picture sequence in which a given moment of time is bracketed. Not only is a visible record obtained of action as a

3000 Frames Per Second!

E-K's new high speed camera employs non-intermittent film moving system; will focus down to 11 3/4 inches; takes 100 ft. spools of 16mm. film.

particular moment, but a record also exists of what preceded or followed that action. Projected at 16 frames per second, films shot at 5000 frames per second effectively "slow" the action pictured by 187 times. This is as if a streamliner traveling 60 miles per hour were slowed to a speed of something less than 6 inches a second.

At picture frequencies of this order, intermittent film movement is not feasible. As a result, the Kodak High Speed Camera employs a non-intermittent film moving system. The film is drawn continuously through the film gate by means of two sprockets. Since the image must remain stationary during exposure, a rotating optical plate is mounted between the lens and the film. This is geared to the film-moving mechanism and moves the image in synchronization with the moving film. End pieces at each end of this plate serve as frame and shutter.

Either of two specially designed lenses

may be used with the camera, a 61mm f/2.7 Kodak Anastigmat or a 102mm f/2.7 Kodak Anastigmat. The former, normally supplied with the camera for general use, may be focused on objects as close as 11 3/4 inches. At this focusing field size measures 1-3/4 inches by 1 inch.

A ground-surface focusing leader is provided for insertion in the film gate, permitting accurate focusing through the eyepiece at the rear of the camera. Once the lens is focused, field size and depth of field may readily be determined. The latter is often particularly critical in work of this sort. Exposure time with the Kodak High Speed Camera equals 1/5 the reciprocal of the number of frames per second. For example, at 5000 frames per second exposure time is 1/15,000 second. As a result, maximum lens apertures are generally used.

(Continued on Page 265)



EARLY DAY recording of music was done on the set as the picture was photographed. Here full orchestra may be seen playing accompaniment to recording by Victor Sengul, seated on park bench with co-star Alexander Gray in scene from "Business Nights."



TODAY musical score or music are pre-recorded and the scene filmed slowly, used to playback. Here Martha Vinton and musical director Ken Peterson previewing a number for forthcoming "The Duke, Prince and The Girl."

Music For Movies

Composing and recording background scores is a highly specialized and rather intricate business.

By HERB A. LIGHTMAN

MUSIC FOR the movies has been, properly enough, on a movie set. It all began, legend tells us, when a certain perturbed director found that the ex-shop-girl star of his latest epic was unable to register emotion before the cameras unless she was attended by the tender music of a small string orchestra playing off stage.

Be that as it may, the string ensemble soon became an integral part of movie-making, and no set was complete without one. About the same time, someone reasoned that perhaps the audience would get the point of the film story more effectively if these same musical emotions were recorded in the theater as the film unfolded on the screen. And so, pianos were installed and the most enduring pianists were set to work interpreting movie moods in terms of music. "The Dance Of The Hoos," William Tell Overture," and "Hearts And Flowers" were melodies which seemed to fit the entire gamut of screen moods in those days.

As the idea caught on, the movie-affluent picture houses installed pipe organs, and it wasn't long before small orchestras were hired to accompany the action on the screen.

It was soon afterward that talking pictures became a reality, and for the first time, music literally became wedded to celluloid.

From these modest beginnings there has grown an industry within an industry, until today every motion picture studio maintains a staff of first-rate modern composers whose sole job it is to write background scores for screen drama. Producers have found that music is one of the most effective means of establishing mood, of identifying characters, of speeding up or slowing down the pace of the action, of pointing up the little subtleties that might be lost were they to depend solely upon picture and dialogue for audience reaction.

Yet, even with all of the progress that has been made in adapting music to the screen, there still exists a certain controversy regarding the role that such music should assume in relation to the action and dialogue of the photoplay. One faction maintains that music for the screen should be so subtle that the audience is never aware of its presence as such—the theory being that the emotional content of the composition will convey itself subconsciously to those view-

ing the film. The opposite school of thought argues that unless the background music merges itself into the very action of the story, its effect is lost.

The most logical evaluation lies somewhere between the two. Music for the screen should, like any other element of production, function primarily to enhance the meaning of the story. Used intelligently, it serves as a smooth transition between sequences, provides dramatic contrast between the visual picture and the underlying idea, prepares the audience for a situation by "telegraphing" the mood, and provides an effective association of ideas for establishing characters and locales.

Although directors are loath to admit it, proper music can sometimes inject into a situation meaning that was not clearly brought out in the acting of the action. The same scene underscored by completely different musical themes can convey several opposite meanings. In any event, the music behind the scene should complement that scene and not fight with it for the attention of the audience.

It is possible to look back over the past several years and recall many excellent pictures that owe at least a part of their effectiveness to superlative musical scores.

These musical backgrounds, had they been composed as symphonies and not film scores, might have been regarded as important orchestral works worthy of performances in any concert hall. Certainly many of them reveal as much effort and talent as several classics made immortal by time alone. Yet remains for concertgoers to forget their prejudices

(Continued on Page 289)

TO BE SURE!

Always use

EASTMAN

Professional

Motion Picture Films

Both 35 and 16 Millimeter
Black & White
and Color Films

J. E. BRULATOUR, INC.

Exclusive Distributors



Immediate Delivery Maurer 16-mm Professional Motion Picture Camera

Thanks to increased manufacturing facilities and improved deliveries of materials, orders for the new Maurer Camera can now be filled promptly.

Price of \$3650* includes —

- Camera
- Facelift-viewing View Finder
- One 400-foot, gas-driven Magazine
- Charge of Motor
110 volt, 60 cycle, single phase synchronous
or 12 volt, D. C., governor controlled
- Switchable Filter Holder
- Carrying Case

Camera Serial takes focus in standard Camerita

*F.O.B. factory, New York City

Will you be satisfied with less than —

The Maurer view plus viewing 45-46x, with which you see a clean, bright image directly through the taking lens, exactly as it will appear on the film.

The Maurer high power (140x magnification) focusing system, which insures critical sharpness in every picture.

A intermittent movement specifically designed for 16-mm film, assuring rock-steady images regardless of film shrinkage or inconsistency of performance.

The Maurer view finder, giving largest, clearest image, with brilliant illumination to extreme edges of finder field, corresponding to the fields of all lenses.

An automatic dissolving shutter, with maximum opening of 235°, that permits shooting with one third less light.

16mm
maurer

J. A. MAURER, INC.

37-07 31st Street, Long Island City 1, N. Y.

Professional Motion Picture Cameras and
Recording Equipment for the Production of
Industrial, Educational and Training Films

THE CAMERA'S POINT OF VIEW

Match the viewpoint of your camera with the mood and pace of your story for a more professional finish to your movies.

By CHARLES LORING

A SPECIFIC situation will never look quite the same to two different people. Subconsciously our impressions of a scene are colored by our own past experiences, emotional make-up and attitudes. In other words, each of us surveys a situation from our own personal point of view.

In the same way, every cameraman—be he studio professional or home-movie hobbyist—has a different approach to filming an individual sequence. Each will look at the situation differently and tend to film it from his own viewpoint. What's more, the choice of camera angles which he employs will determine the audience's point of view in reacting to the sequence.

All of this works to the cameraman's advantage, for it allows him to get style and approach into his camera treatment.



INTERESTING angle shots feature John Munsie's 16mm. movies which are consistent good winners. In Philadelphia's Munsie Club district, Loring is tripod on the moment Munsie makes a few angle shots at dinner in action while Mrs. Munsie aids in studying the camera.

Remember that while the cameraman acts the entire situation which he is filming, the audience will see only as much of it as he frames in his own finder—and they will see it in terms of the perspective which his camera angles create.

Since point of view is so important, then it is to the cameraman a definite advantage (even if he is only shooting scenes of the kiddies in the backyard) to sit down and do a bit of planning before he starts the camera. He should decide just what kind of mood he wants to establish, what kind of camera angles he will require, and how the camera can be used to best complement the scene. This bit of planning will pay its way many times over, for it does away with the costly hit-and-miss shooting which we see so often. It will give the screen presentation a more professional finish, and—most important of all—it will tend to draw a more appreciative reaction from the audience.

The camera, depending upon its position in relation to the setting and the action, can convey many different impressions of the same scene. It is for the cameraman to decide what impression he wishes to create and then follow through accordingly. Let's take a look at some of the basic principles of camera viewpoint, and the ways in which they influence an audience's impression of a particular scene.

The High Angle Shot When you look down at anything, you automatically become (in a psychological sense) superior to whatever you are viewing. If you look down from a height at a scene even as vast as the Grand Canyon, you will still experience a sense of power that comes from having the whole thing spread out before you. Subconsciously you feel that it belongs to you and that you are able to command it from your exalted position. This probably explains why political dictators unreasonably build their thrones on mountain-tops, and feel more powerful when huzzaging the masses from a balcony.

In terms of the camera, a high angle creates a very similar

(Continued on Page 204)



WITH KODACHROME film in his camera and a pole across over the last Richard Thibaut of Salt Lake City makes a low angle shot of a canyon-climbed Munsie back-country at about 1000 ft. for his latest 16mm documentary on contemporary life of the Munsies.



ONLY INDICATION that this is a 16mm. production is the Mitchell Professional 16mm. camera visible in the crowd camera lineup. Otherwise, the equipment is the same as used in average Hollywood studio productions.

THE GENERAL LIGHTING projected onto sets was fitted with colored filters to enhance pictorial quality of the Spanish roofs and rugged stone structures.



GRAND OPERA IN 16MM.

**How one producer found it more efficient
and economical to make 16mm. color films
using a 35mm. studio and its equipment.**

By ELWOOD NICHOLSON

GEARING production to standard 35mm. methods and equipment, save for the 16mm. camera, Amalgamated Pictures, of Hollywood, have proved that a 16mm. color production can be produced for less money and in less time than when undertaken in the average 16mm. film studio.

The proving ground was the Hal Roach Studio in Culver City and the production a three-act version of the opera, *L'Pagliaccio*, which we filmed in 16mm. Commercial Kodachrome in two ten-hour working days. Obviously, this was not accomplished without considerable advanced planning, with strictest economy use of the dominant arts. Moreover we proved that a limited budget 35mm. color production can be made more economically by shooting it in 16mm. Kodachrome, then blowing it up to 35mm. Ansco-Color. Releases of this production are to be made available in both 16mm. and 35mm.

Chiefly responsible for the remarkable time-saving in production was the use of the Mitchell Professional 16mm. camera. Its light weight and compactness made maneuverability within stage space of limited area no problem. Its many features enabled us to produce, while shooting, many of the cinematic effects that usually demand costly optical printing.

Otherwise, the usual sets, lighting, etc., employed in 35mm. production, were used. One week preceding the shooting, the sets were carefully selected and erected on the sound stage. Camera angles were so planned that the camera worked within a 15-foot radius throughout the production, with the exception of one or two long shots of the village in which the action was set.

Lighting was rather a simple matter. The entire set and all backings were illuminated to an overall level of from 800 to 1200 foot candles, depending upon the color contrast required for building fronts

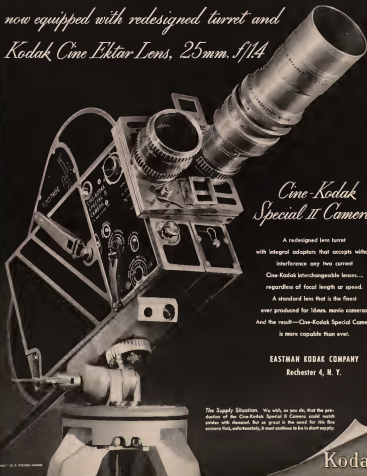
the roofs, and the clouds, trees, etc. We also used projected color to enhance pictorial quality of the channeled roofs and of the buildings constructed of volcanic stone. Once the entire set was illuminated to our satisfaction, it was a simple matter to work at any camera angle by using only 6 to 10 lights around the camera.

Exposures ranged from 1/25 to 1/250 depending upon the distance of the back and foregrounds. Air lamp illumination was employed only where night effects were called for, and then incandescents were used to light the actors in the foreground. The sets flooded the backings and buildings with light of approximately 550 foot candles in intensity, which did a beautiful job of upturning the color balance of 3200 to 6000 K. But by using two stops under-exposure, a soft silvery sheen was imparted to the overall scene, the color rendition was more in the gray scale, and this resulted in a truer rendition of the night effect we sought.

Concerned and directed by Thomas Peluso, well known musical figure, this new treatment and presentation in color of the opera will, it is hoped, do more to place grand opera in an idiom for laymen and for those who heretofore have shunned opera as "highbrow" than any musical presentation since Mr. Peluso's *Opera Of The Air*, sponsored by Union Oil Company. The condensed version of *L'Pagliaccio*, and the others which comprise the program of 52 which are to be filmed,

(Continued on Page 288)

*This superb 16 mm. camera
now equipped with redesigned turret and
Kodak Cine Ektar Lens, 25mm. f/1.4*



*Cine-Kodak
Special II Camera*

A redesigned lens turret
with integral adapter that accepts without
interference any two current
Cine-Kodak interchangeable lenses...
regardless of focal length or speed.

A standard lens that is the finest
ever produced for 16mm. movie cameras.
And the result—Cine-Kodak Special Camera
is more capable than ever.

EASTMAN KODAK COMPANY
Rochester 4, N. Y.

The Supply Situation. We wish, as you do, that the production of the Cine-Kodak Special II Camera could match yours with demand. But so great is the need for this fine camera that, unfortunately, it must continue to be in short supply.

Kodak



MANY OF the professional cinematographer's tricks and devices are regularly used by Long Beach Club cameramen, when photographing on location. Here a "guy" searched from among the club's membership holds a reflector while a brother dangles sheets to diffuse.



CLUB MEMBERS, when in production on location, may be classified by effective white sweater bearing the club's insignia. L. B. C. Productions. On the back, these group of club's cinematographers are displaying their cameras for a shot for "Happy Landings."

AMATEURS MAKE MOVIES THE HOLLYWOOD WAY

Long Beach Cinema Club's systematic production methods result in prize-winning pictures.

By RALPH LAWTON

ONE REASON why movies made by the Long Beach Cinema Club consistently win prizes is because they are produced like movies in Hollywood. That is, the productions are organized and run on a business-like basis right from the beginning. First the story is written, then the shooting script. The shooting is carefully planned and camera positions and story action diagrammed. Screen tests are made in selecting the cast, then a production unit is assembled which includes the director, chief cameraman, script clerk, property men, grips and gaffers and, when a picture is to be made in sound, a sound technician.

The man usually found heading film production activities of the club is Clarence Aldrich, local architect and one of the founders of the club. Years ago, Aldrich was connected with a Hollywood motion picture studio, where he learned the rudiments of movie production and had opportunity to observe how necessary was a smooth working staff to the success of a picture.

Later, when the Long Beach group embarked on making serious 8mm and

16mm films, as a club project, Aldrich applied sound business methods to these film productions. As a result, the club

has been producing one or more feature-length pictures each year, of which there are usually several versions in both 8mm and 16mm photographed by as many members. Unlike with some amateur movie clubs, participation in production of club films is not limited to a chosen few comprising the elected technical staff. Any club member may undertake to photograph his version of the picture.

Judging from the number of films produced so far, there seems never to be a dearth of contemporary ideas among these Long Beach movie makers. On the contrary, so many good ideas are offered when story conferences are called, the committee is taxed in making a final decision. Among stories filmed to date, which have won national renown include "Fire From



NOT ONLY is a comprehensive shooting script prepared for every club film production, but each location is analyzed and the shooting scheduled in diagrams like this. Diagram shows location of camera for each scene as well as position of players and important props. Shooting that becomes an entire production, and trips for rentals are held to a minimum because the shooting was carefully planned in advance.

the Skies, a national defense film produced during the war, "Happy Landings," aimed to publicize the attractions of Long Beach, and "Farmer's Daughter" and "Chicken Feathers"—both rural comedies with Keystone comedy overtones.

Aldrich says that planning these pictures is more than half the fun. The production staff usually gets together several times for discussions about the story to be made, select, and plan locations and various bits of business that will make the picture more than an ordinary movie. Then location scouting trips are made and camera positions planned so that when the company arrives on location everybody knows what is to be done, where the cameras are to be set up and the players what to do.

Preceding the actual starting date of each production, however, Clarence Aldrich spends considerable time in the preparation of the shooting strips and in making the location charts. Skillfully, with his architect's pen, he plots each location and indicates on diagrams the position of the cameras for each scene as well as the direction of travel of actors and vehicles making part in each scene.

These diagrams, along with the shooting strips are duplicated on his blueprinting machine to provide separate copies for each of the technicians and members of the cast, much the same as is done in Hollywood studios.

Makeup is an important consideration in every production and several club members have devoted considerable study to the subject and have produced some notable results using standard studio techniques and makeup. Sometimes, when productions are to be shot in both black and white and color, makeup becomes a realiser, but this is usually solved by happy compromise. Raymond Finkhold, a keen student of Max Factor's techniques, was the club's first exponent of motion picture makeup and is credited with many successful character transformations for ornate screen stars of Long Beach Cinema productions.

One of the advantages of working together in a group like this is that the individual amateur is able to make better pictures because of the assistance which other members are able to render, for any movie amateur knows what a task it is to try to make a serious film alone without understanding and competent help. Also, he invariably is able to use a wider range of equipment and accessories, owned by other members and usually pooled and made accessible to the club while production is in progress. Thus dolly shots, fades and dissolves and the use of sunlight reflectors are made possible, further enhancing his picture.

So well does the club's movie-making group work together that seldom is pro-



"And the Villain Still Pursued Her"

OUR heroine is in a tough spot again. Ever since the first "Bickers" were filmed, this little gal has been getting in front of locomotives, falling from skyscrapers, teetering on the brink of eternity. And ever since 1927 her perilous flights have been filmed for the Sunday serials with the aid of Mole-Richardson lighting equipment. During those 21 years, the Academy of Motion Picture Arts and Sciences have awarded five "Oscars" to Mole-Richardson Company for outstanding achievements in the field of photographic lighting.



The CINELITE This 1000 watt incandescent flood provides ideal house light. Weighing only 32 pounds, it can be quickly disassembled into three easy-to-handle components: cord and socket, folding stand and reflector dome. It's perfect for "location" jobs or heavy duty studio work.

"MOLIGHTING" EQUIPMENT

Midget Spot ★ Baby Sidelight ★ Junior Sidelight ★ Senior Sidelight
Cinelite ★ Single Side Lamp ★ Double Side Lamp ★ Duarc
Molerc Type 90 ★ Molerc Type 170 ★ Molerc Type 450

SEE THESE LIGHTS AT YOUR DEALER OR WRITE FOR CATALOGUE



MOLE-RICHARDSON CO.

917 NORTH SYCAMORE • HOLLYWOOD 34, CALIFORNIA

Photographic Lighting Equipment Since 1927

Cine Kinks

For Movie Amateurs

FOR QUICK focusing of movie films, after setting up projector, splice in two or three frames from a discarded reel in middle of the film leader. Bring these before projector aperture momentarily to adjust focus. Prevents blurring your good film and your show will start off right with picture in focus.

A WHIRLING title can be made by mounting title card upside down on your photograph mountable. Photograph it with camera upside down. Run camera long enough to wind title completely, then start photograph motor and let run for five seconds before stopping camera. When film is developed, turn end for end. Result: title will appear first spinning, then come to a stop, right side up.

FADES can be made with any 8mm. or 16mm. camera by closing down lens diaphragm. Trick is accomplished easily by making a control gadget that fits over lens diaphragm ring, as follows: Cut a narrow ring from a piece of pipe, slightly larger than diameter of lens. Drill and tap hole in edge to take small set screw. On opposite side, solder or brace a 5" length of welding rod for a handle. Slip over lens and secure by set screw.

SPRING CLOTHESLINES, numbered and arranged on a card with above titles editing table, afford simple means of holding film strips ready for editing and splicing.

IF YOUR 16mm. camera provides for making single frame exposures, you can make 16mm. slides, same as Leica and other 35mm. still camera owners. Mount frames in regular 2 x 2 slides, using appropriate masks made of thin cardboard. Screen slides with regular 2 x 2 projector.

TO LABEL your films, write or letter the title at beginning of white leader, then apply coat of clear nail polish over the lettering.

A WAIST-LEVEL finder for your cine camera can be made from a selfer finder slit vipped from an old box camera. Mount it on a strip of sheet metal, and bend strip to form a clamp as it may be attached to top of your camera.

LETTERING titles by hand becomes easy when you use the inexpensive celluloid lettering templates on sale at stationary stores. Some these stores have them, too.

action delayed or postponed because one member chooses to play golf instead of responding to production calls on set or location. Recently, the club provided its members with white sweaters bearing the initials "L. B. C. C." on the back, so he worn when on location as a badge of membership in the organization. The appearance of the group shooting on location thus assured also gives them a certain measure of prestige and entree to shoot in otherwise restricted locales.

More recent interest has centered on Clarence Aldrich's sound on film productions, which are also a Long Beach Cinema Club project in that while his is the only sound camera employed on the productions, the cast and technicians are recruited from among the club's membership. Aldrich possesses an impressive array of sound equipment. Years ago he acquired one of the first R.C.A. single system sound cameras. This was known as the "Newwood Model" and featured a small microphone built into rear of the camera. Inside was a galvanometer for recording sound on the film as the picture was photographed.

Over a period of time, Aldrich has improved the camera with a separate microphone, an improved recording head and a blimp which he designed and built himself. He has probably tested every known make and model microphone with

his equipment until today he has recording equipment that gives him near-professional results.

People gather around to watch whenever the club is on location, just as they do when a Hollywood studio is shooting pictures. The fact that it's an amateur production seems to make no difference, and frequently youngsters with autograph books in hand will gather around the stars' asking for their signatures.

It goes without saying that Long Beach Cinema Club members have lots of fun making pictures this way, as well as turn out pictures with greater professional finish. Already, two of the founder members have advanced to professional picture making, due to the interest and experience gained by working with the group.

As for Aldrich, he has no professional aspirations. One time he screened one of his animal short subjects for a friend in Hollywood, who ecstatically called it a movie mogul to view the film. At conclusion of the showing the magazine arose and offered Aldrich a chance to produce commercial films in Hollywood.

Aldrich declined, saying, "This is my hobby. If I were making movies for a living, I'd be as it to make money, and that would spoil the fun." And besides, the Long Beach Cinema Club would lose one of its most enthusiastic amateur film producers. ★ ★ ★

"SPECTRA" MEASURES COLOR TEMPERATURE

(Continued from Page 267)

of light, generally the red and blue, are directly dependent upon the color temperature. If the color temperature is low the relative amount of blue rays will be low, and hence the reds and yellows will predominate due to the lack of the blues, if the color temperature is high, the relative amount of blue rays will be high and the light will take on a "winter" appearance because of relatively lesser amounts of reds and yellows by comparison with the blue rays present in the light source.

When light is a combination of rays of all colors. If the color temperature is raised still higher, the relative amount of blue has increased so much in comparison with the amount of red and yellow rays present, that the light simply looks blue—and degrees Kelvin is the measuring stick of how many blue rays are in the light source by comparison with the red rays. The eye, being adaptable, is able to adjust itself to individual variations, and after a short time in any of the above color temperatures, objects will begin to appear normal. But film cannot do this, hence some mechanical means must be used to give the control we need for photography.

This control takes two forms: first, so be able to determine where we stand

with the composition of the rays in the light source; and the second is to be able to do something about it. Standards had to be set and constants decided upon, and of course the first thing that must be regarded as a constant is the film itself, in the case of the three-layer single base films of which Kodachrome is an example. It was found that the optimum mean average color temperature of daylight is approximately 5500 degrees Kelvin, so the film was balanced for this value. Type A, for use with high-efficiency photoflood lamps exclusively, was balanced for 3400 degrees, and the Commercial Kodachrome and the Type B were balanced for 3200 degrees, designed for use with standard studio lighting units. These values must be met as a prerequisite to good color reproduction. If a disparity exists between the color temperature of the light sources and the values established for the film, something must be done: either the light source must be adjusted to meet this value, or a correcting filter used to compensate for the disparity. In either case some simple, reliable and accurate method must be used to measure the color temperature of the light from the light source.

An approach to the problem had been made with meters which employed pro-

cesses requiring the matching of color tones. This was not entirely satisfactory, since more often than not two people reading the same illumination (with a constant color temperature) would get two different results, and even the same individual reading the same illumination at two different times would get two different results. This, too, is the result of the adaptability of the human eye and its capability of adjustments which a mechanical device cannot make. The principal shortcomings of color temperature meters up to the present time, then, was that they depended upon the human eye to determine a match or a mismatch of color tones.

In the new Spectra direct-reading color temperature meter a simple, direct and positive approach is made to the problem. Simplicity and direct approach are essential to speed and accuracy under practical studio working conditions, and rule out any methods dependent upon the human element, such as matching spectra to delicate nuances in color tones, especially when fatigue, or even variations in individual responses, can influence the result.

The Spectra is basically a photo-electric cell whose output is fed to a microammeter, as in the case of photo-electric exposure meters. A red filter runs between the diaphragm (which controls the amount

SALES • SERVICE • RENTALS

— 35 mm. • 16 mm. —

CAMERAS • MOVIOLOS • DOLLYS

Complete Line of Equipment for Production Available for Rental

Mitchell: Standard - Hi-Speed - NC - BNC - 16 mm.

Bell & Howell: Standard - Shiftover - Eycmos

Maurer: 16 mm. Cameras

Moviola: Editing Machines - Synchronizers

SPECIALISTS IN ALL TYPES OF CAMERA REPAIR WORK. LENSES MOUNTED



If you are associated

with the production of MOTION PICTURES, TELEVISION, 16 MM. FILMS, reading THE AMERICAN CINEMATOGRAPHER every month is a "must." In no other publication will you find so much pertinent news, so much helpful information, nor technical discussions as appear in each issue of THE AMERICAN CINEMATOGRAPHER.

SUBSCRIBE TODAY... 12 issues \$2.50 per year, foreign \$3.50

AMERICAN CINEMATOGRAPHER • 1782 No. Orange Blvd., Hollywood 28, Calif.

This "TOP SECRET" saves you money

Yes, the Fonda film developing machine saves you money by the very simplicity of its efficient mechanism. The secret is in Fonda's exclusive patented Top-Drive drive... the proved sure way of eliminating film slack.

Top drive is sensible and logical from every mechanical standpoint, operates in the clear... is never subjected to "drowned out"... is easy to service, as occasionally required... eliminates film slack.

The Fonda film developer gives you almost any speed range... processes 35 mm, 16 mm, black and white, positive, negative and microfilm.

SEND FOR FREE BOOKLET...

Find out why Fonda is America's finest film developer by sending for your complimentary copy of "The World Develops with Fonda." Address: Fonda Division, Solar Alloys Co., 2280 Pacific Hwy., San Diego 12, Calif.



FONDA FILM PROCESSING
EQUIPMENT DIVISION

SOLAR
STAINLESS PRODUCTS

SAN DIEGO 12, CALIFORNIA
40 EAST 42ND STREET, NEW YORK 17, N. Y.



of light entering the cell) and the cell itself. The scale of the microammeter is calibrated in degrees Kelvin. The meter is pointed at the light source and the diaphragm adjusted until the needle on the scale points to a reference marker, indicating a fixed amount of red rays striking the photo cell by virtue of the light from the diaphragm and the red filter. Then, with the meter resting in the hand, the trigger is squeezed with the forefinger, removing the red filter from in front of the photo-cell and replacing it with a blue filter. *The value to which the needle then points is a direct reading of the color temperature of the light being examined.* By reading the value with the blue filter in place over the photo cell we have established a ratio between the amounts of blue rays going through the blue filter into the photo-cell to the red rays we were using as a basis for the measurement, and since we now know the relative amount of blue to red rays, we have satisfied the requirements for the measurement of the color temperature of the source. The meter is photo-electric in operation and eliminates all human element in its reading. *In actual operation, it is merely a matter of pointing the meter to the light source, adjusting the diaphragm to the reference marker, squeezing the trigger, and taking the reading directly from the scale.*

Now that we know where we stand, the next thing is to do something about it. Depending upon the color process used, we will be aiming for a color temperature of either 5000 degrees or 5400 degrees Kelvin, and either the light itself must conform to this value or correcting filters used to compensate for the disparity between the light color temperature and the value for which the film has been set. If we are working out of doors, the only control will be the compensating filters; indoors, and with incandescents, we have the compensating filter and the additional control of the voltages at which the lamps are operating, plus the use of filters over the lamps themselves.

The color temperature of the light outside can vary from a low of 2500 degrees either in the early morning or late evening when the sun is low, to a high of

around 20,000 degrees, which will be found when using a north skylight during a clear day and with no sun illuminating the subject, as would be the case if we were shooting in the shade of a tree of a building. As we pointed out earlier, the synthesis of light is readily apparent in its wide variations, but in dealing with color film we must pin ourselves down to a fine point—5900 degrees. If our light temperature is above this value the results will be too cold, if below it, results will be too warm, and a difference of 50 degrees, which go completely unnoticed in the original scene due to the adaptation of the human eye, will produce a noticeable deviation from the normal on the film—and in some cases out of sync, motion using the human eye as a criterion for a match or mismatch will also miss the difference. While corrective control in the laboratory is possible in some color processes, this separation does not obtain with the three-layer single base film unless the color negatives are made from them. So we are left with the compensating filters as the only remaining means of control.

For use in conjunction with the Spectra the Photo Research Corporation furnishes a chart whereas the correction produced by every filter in both the Harrison and the Eastman Color Compensating series is given either upwards or downwards, as the case may be. For example, suppose we are using an emulsion balanced, for exterior work, for 5900 degrees. Upon reading the meter we find that the color temperature of the light at the time and under those particular conditions happens to be 7500 degrees, a common reading on an overcast day. We would then refer to the chart and pick out the filter indicating the correction downward from 7500° to 5900°, and this would be the filter that would be used over the lens of the camera.

In interior work deviation from the rated color temperatures of the lamps is caused by discoloring of the globes and by variations in the line voltage. Variations in color temperature beyond permissible tolerances can readily be brought on by relatively small changes in line voltage. If a uniform discrepancy in color tem-

perature exists the proper filter can be selected as outlined above. If an anomalous condition occurs we will be aware of it before any film will have been exposed under electrical conditions antipodal for photography.

We can also use voltage control as a means of color temperature control when incandescents lamps are used. The higher the voltage the hotter the filament will become, and the more blue rays will be emitted, hence the higher the color temperature. If a thiosulfite or similar means of voltage control can be used, the disparity between the required color temperature and the actual color temperature can be removed by changing the voltage until the lamps read the required temperature. Application of this method in practical conditions will prove possible only in occasional situations, however.

Because of its spectral characteristics, fluorescent lighting for color is not satisfactory.

The meter itself is used in the same manner as an incident light meter. In doing, it is pointed directly toward the light being examined, and the diaphragm rotated until the needle comes to the reference marker, the trigger squeezed, and the reading taken. In use outdoors a sphere is placed over the far disc, used for interior readings.

The reason for the use of the hemisphere is to take into account all the factors that affect the effective color temperature in an exterior scene. The factors that affect this value are the amount of sky illuminating the subject, the brilliance and the altitude of the sun, the amount of haze and clouds present in the sky, and the amount and character of reflected light present in the overall light picture. It works like a chess game, where any number of combinations of factors are possible with as many different results.

The reason the sky is blue is because of minute particles that are present in the air. If these particles did not exist the sky would look black, as it does to an observer in the stratosphere, where the air is so thin that very few particles are present. These particles also form nuclei around which condensation occurs and clouds form. The blue light we get from the sky (in places other than Southern California where the smog often won't let us see it) is caused by those particles scattering the blue rays coming from the sun.

There is a direct relationship between the size of the particle and the wave length of the light it will scatter. Haze in the air is caused by a formation of moisture around the dust nucleus, and as the size of this particle varies, the wave length of the light it will scatter will vary. As a matter of fact, if we were to illuminate a subject with pure sunlight

EVERYTHING PHOTOGRAPHIC

AND CINEMATIC FOR PROFESSIONAL AND AMATEUR

The World's Largest Variety of Camera and Projection Supplies and Laboratory Equipment with Latest Improvements as Used in the Hollywood Studios, New and Used BARGAINS

HOLLYWOOD CAMERA EXCHANGE

1600 CAHUENGA BOULEVARD
HOL-5651 • Hollywood, Calif. • Cable Hecaters



second noon with no sky illumination, we would find the result photographed in decidedly warm tones. This is because of the scattering of the blue rays by these dust particles, the wave lengths of which are now missing in the pure sunlight.

A light measurement here would indicate a value in the neighborhood of 5400° Kelvin. It follows, then, that a wide variety of color temperature is possible as a result of different sky conditions and the different amounts of sky used as a part of the light source, all this in addition to the variations caused by the changing altitude of the sun. Actually, the reason the sun drops in color temperature with a lower altitude is because of the increased scattering of the blue rays brought on by the increased angle at which the sun strikes the particles, leaving less and less blues in the sun's direct rays until the sun becomes red when it is on the horizon.

Which brings us to reflections, plain and fancy!

In a *specular* reflection, where the rays leave the reflecting medium much in the same form as they entered (such as reflections from water) we would find the basic color temperature unchanged. But it is where we have a *diffuse* reflection that things start happening. And most of the reflections are diffuse. If a large area of a given color is illuminated by the sun and an object is photographed nearby, the average color temperature of light illuminating that object will be found to be greatly affected. For example, if a person is photographed near a bright red building upon which the sun is shining brightly, the picture will be too warm in tone because of the lowered color temperature as a result of the reflection from the red building, unless something is done about it. The sphere on the Spectra does—it integrates the sunlight, the quality and the amount of skylight, and the reflections that affect the color temperature of the illumination and averages them out to give us an overall value that will be correct for the film. The Spectra meter is held at the subject position, pointed toward the camera, the reading taken, and the proper compensating filter chosen from the chart.

The point may be made that the atmospheric characteristics of the compensating filters vary with the different wave lengths of light. This is true, and for that reason each of the compensating filters was rated for 5900°, 5400°, and 5200°. As long as one of the values in the change-form change-to relationship is one of these constants, the amount of correction is one of the fixed values listed, and in direct color photography this is always the case. It is when both values are variable that an infinite number of corrections would be possible for any one filter. ★ ★ ★

“PROFESSIONAL JUNIOR” CAMERA EQUIPMENT

GEAR DRIVE TYPE

Gear Drive head, made of Dow Metal, weighs but 5½ lbs. and is interchangeable with the Friction type head. It handles all types of cameras. Snap-on metal cranks control pan and tilt action from both sides. Worm-driven gears are Gov't spec for size.



FRICTION TYPE TRIPOD

Top plate handles 16mm. E.K. Cine Special with or without motor, 35mm. DeVry, 8 & H Eyemo with motor and 400° magazine, Speed Graphic or 8 x 10 View, and all 16mm. hand-held cameras. The removable head is interchangeable with the Gear Drive head. Both types fit “Professional Junior” standard tripod base. “Hi-Hat” and “Baby” all-metal tripod base.

BLIMP for 16mm. E.K. CINE SPECIAL

This Blimp, constructed of Dow Metal, is thoroughly insulated to afford absolutely silent operation. Has many exclusive features that allow focusing and lens calibration changes from the outside while taking pictures. Blimp takes synchronous motor drive which couples to camera. A dovetail bracket is provided to mount an erect image viewfinder.



SUNSHADE & FILTER HOLDER COMBINATION

For use with all popular types of 16 mm. cameras. Holds two 2½ sq. glass filters and a round 2½" Pola Screen with handle which can be rotated for correct polarization. Covers all lenses from 15mm. to 6" telephoto and eliminates need of many other filters. Precision made of the finest materials. Compact, simple to assemble and disassemble. May be permanently affixed to camera or can be taken apart to put into camera carrying case.

—ALSO AVAILABLE—

BABY TRIPODS 3 WHEEL PORTABLE DOLLIES
CHANGING BAGS “HI-HATS”

Send for our catalog. It describes all our products completely.

FRANK C. ZUCKER
CAMERA EQUIPMENT CO.
1600 BROADWAY NEW YORK CITY

BOOKS

You'll Want To Read

AN INTRODUCTION TO COLOR by Ralph M. Evans. John Wiley & Sons, \$6.00

Those who would work successfully with color in photography must understand the combined effects of the properties of colored light, the properties of vision, and the action of the mind in interpreting color. In non-mathematical text, the author divides his discussion into three sections: physics, psychophysics, and psychology. In the first he takes up the sources of light and the objects and substances that modify it. The second section deals with purely physical light, and in the third the author considers relationship between color and its perception by the human mind.

There are 504 illustrations of which 15 are full color plates. These alone are highly instructive, both for the professional and the amateur photographer. The author, a recognized authority in the field of color, is in charge of color quality control for all color processes at the Eastman Kodak Company, Rochester.

★
PROFESSIONAL PORTRAIT LIGHTING by Charles Abel. ARPS. Greenwich-Publisher \$7.50.

Here is a book certain to find a place on the library shelf of the studio solo photographer. Although it is entitled *Professional Portrait Lighting*, and emphasis throughout is placed on lighting basic to all photography, the book is far more than that. It is also a textbook on what professionals like to call "The Psychology of Handling the Sitter." Any lighting described in this book can be duplicated with any type or kind of equipment. The professional who wishes to perfect his craftsmanship will learn much between the covers of this book. It is amply illustrated with hundreds of photographs augmented by diagrams of the lighting setups used in making each picture.

★
WESTWARD HOW, by Fred Bond. Camera Craft Publishing Co., \$6.95

Fred Bond, nationally known travel photographer knows the scenic West as few men do. He has driven more than 200,000 miles in the past ten years, circling the West from Canada to Mexico, and from the Rockies to the Pacific. In this book he gives the photographer the benefit of his vast camera experience, so that any traveling cameraman, using this book as a guide, may set out on a camera tour of the West and bring back good pictures of the most scenic spots. The book plots 71 planned camera tours and includes a supplemental route selection map.

'ACT OF VIOLENCE'

(Continued from Page 208)

downtown, near Commercial Street, Santa Fe freight yards, the Hill Street tunnel, Barker Hill, and the Glendale railroad depot, and always with the city looming in the background. Other locations were shot at Big Bear Lake, and Santa Monica was utilized as the small California city. Aerial homes, restaurants, bars and banks were used as the sets. Realism was the most important requirement in the staging of the film.

Naturally, such a story has more effect scenes, night exteriors and interiors than the average picture. Mood must be captured and maintained at all times. Yet utmost care was taken that each scene, shot by shot, kept a continuity of atmosphere that led into the following sequence. Also we were careful not to go too dramatic in any scene preceding a scene which called for great dramatic punch. In other words, we would not get hammy with the camera in scenes not requiring special treatment. This left us something for "punch" when it was needed later. Time of day was established by careful lighting, and for this extensive area were made before the picture was in production.

Instead of just making a shot either day or night, we used lighting the sets in a manner that would identify afternoon, morning, dusk or dawn. This is not too easy, and the technique used was either to project light, using one stand and lighting equipment, or by using reflected light, (see article on reflected lighting in October, 1947 issue—Ed.) reflecting illumination on large alk surfaces and then into the sets. Many scenes were photographed by using a combination of the two types of lighting. Much work was saved by using reflected lighting through doorways, windows and any available opening. Where sets had low ceilings covering them completely, reflected lighting was a "must." There is no overhead lighting in any place in the picture.

Every scene in the film was made with a 28mm lens in order to carry focus and to give more interesting compositions. Mr. Hans Perutz, the art director, designed all sets especially for the 28mm lens perspective and thus kept them all in free proportion on the screen. At no time was any diffusion used before the lens on either long shots or closeups. We were fortunate in that the leading woman's role was played by Janet Leigh, a young and beautiful girl who photographed well without diffusion and who can take any kind of a key light.

The primary thought in lighting the sets was to light for the mood of the scene, no matter whether it flattered or detracted from the actor's appearance.

Yet at the same time—differing from the technique followed in photographing many present day "realist" pictures—never did we distort our players' appearances to achieve an effect. They simply looked natural and like everyday people and not like familiar Hollywood stars. No make-up of any kind was used on any member of the cast. We tried to maintain on the screen a high standard of skin texture—no made-like faces in a production of this type.

If a light source from a table lamp was actually photographed in the picture then the entire set was lighted from that direction. Since all the picture was played this way we had to have the lamps placed in the best location for the scene before we started to shoot. Through the cooperation of Mr. Zimmerman, and by rehearsing the scene before we started to light it, it was possible to achieve natural lighting with utmost fidelity. If an actor stood between a lamp and the camera, we let him go black—just as it would appear in real life.

A higher than usual degree of contrast was employed in the lighting—hard or twin lights were seldom used. Sharp focus was maintained simply by lighting the individual shots sufficiently to be able to work at a less stop which would carry whatever focus the shot required. At times this meant over-lighting an interior enough to stop the lens at F6.5 in order for the focus to carry. Then again quite a few scenes were made at F2. In such shots there were no depth of focus problems.

On cameras, down effects were obtained by over correction with filters. Dusk scenes were filmed at dusk—with a few booster lights added for emphasis.

The rough problems arose when we started shooting night exteriors in the downtown areas of Los Angeles. It was extremely difficult to get background detail on the film when using only foreground action lighting. Street lamps aided immensely in this problem. We sometimes flattered photo-floods to lamp posts a block away from where we were shooting, and added this, some very real night exteriors were obtained.

Shooting night sequences in a railroad yard proved a rough assignment because of the mechanical difficulties of running cable feeders to lamps across rails and tracks. At this location we had to get shots of an attempted suicide of a man jumping before an oncoming train, with the locomotive headlight supposed to be the only light source. Try this sometime. It was a challenging problem but it finally worked out successfully. Later, an entire scene was made showing the lights from

pollman coach windows flashing across the screen faces. Such effects proved highly dramatic on the screen, and they could not easily have been secured without working with people who understand our difficulties and problems.

Mr. Zinnemann's background was especially conducive toward bringing about the close and effective working relationship we maintained. Years ago he and I had been fellow students cameramen at the EFA Studio in Berlin. Here, also, Zinnemann had been a close friend of Robert Flaherty, one of the pioneers in the field of the documentary film. They spent many hours over a period of months discussing the then "new" technique later evidenced in Flaherty's "Nanook of the North," "Moina," and "Man of Aran."

It was Mr. Zinnemann himself who in 1934, directed one of the first successful documentaries, the Mexican-made "The Wave" with Paul Strand, Director of Photography. He subsequently took at most identical "basic meaning" directing some of the "Crime Does Not Pay" series at M-G-M. By odd coincidence, his first feature film, "Kid Glove Killer," was a small-budgeted but documentary-type crime picture in which Van Heflin, one of the stars of "Act of Violence," received his first big break.

Mr. Zinnemann's knowledge of camera and our fortunate ability to look at a scene together and see the same thing expedited our work on "Act of Violence."

The picture was completed on schedule despite all the unlooked for problems, and this was possible only because all worked as a team—from the preliminary preparation to the final shot. It seems to me that a great deal of money could be saved by our studios if the Director of Photography were consulted in all budget meetings held before a picture goes before the camera. I fully believe that a big step towards real economy in the film industry would be made if the man responsible for the set operation of the crew, the Director of Photography, were assigned to a picture prior to the final draft of the shooting script. Thus he could suggest many shortcuts and money-saving devices which are never thought of until too late to put into execution. During the present economy wave in Hollywood many a picture is handicapped with an impossibly short schedule.

When filming falls behind schedule the Director of Photography is blamed for being slow, because it is impossible for him to keep on schedule and at the same time turn out an even less quality picture. The case comes when every cameraman asks: "When shall the Director of Photography be recognized as the most important cog in the production of a picture?" For it is he who, by virtue of ability,

C. ROSS

FOR LIGHTING EQUIPMENT

Inkies and Arc Lamps including Required Accessories
Generators—Cables—Boards—Boxes

Ruby Camera Crane—Dollics—Blimps—Geared Heads

GRIP EQUIPMENT

FOR LOCATION AND STUDIO
Parallels—Steps—Platform Ladders
Century Stands—Reflectors—Flags—Screens

SOLE EASTERN MOLE-RICHARDSON CO. DISTRIBUTOR
RENTALS • SALES • SERVICE

CHARLES ROSS, Inc.

333 WEST 52nd STREET

NEW YORK 19, N.Y.

Circle 6-5470-1

----- Only Art Reeves Can Sell The New Model -----

SENSITESTER

Will Handle Modern Fine Grain Film

NOW AVAILABLE

Line-O-Lite Recording Glow Lamps

ART REEVES MOTION PICTURE EQUIPMENT

1515 N. Cahuenga Blvd.

Hollywood 28, Calif.

Rentals
Sales and Repairs
Mitchell
Bell & Howell
Epson
Akeley
Wall
Cameras

"Debloopers"

John Clements • Erwin Harwood

National Cine Equipment

20 West 22nd St., New York 10

Designing
Manufacturing
Lens
Measurements
16 and 35 mm.
Fisher Lenses
Photometric
"F" Scaling

Cine Special Repairs, Modifications

Animation Stands • Motors • Magic Eye Cameras

25 YEARS AGO

With A.S.C. and Members

- GEORGE BENNETT bought a Mitchell camera, then took a leave of absence upon completion of filming "Tully" for Richard Widmark Tully in order to try it out on a personal filming venture.
- ROBERT DORAN at the Hal Roach Studios, was shooting "What Should a Girl Do?" starring Edna Murphy.
- ARTHUR EDISON and Phil Whisman were collaborating on the camerawork for Douglas Fairbanks, Sr.'s, "Thief of Bagdad."
- FRED JACKMAN returned from a location-scouting tour in the mountains of Colorado, in preparation for the production of a picture he was to direct for Hal Roach release.
- GILBERT WARRINGTON was on location in Montreal, Canada, shooting for Cosmopolitan productions.
- ROBERT NEWHARD finished shooting "The Handback of Notre Dame," which was heralded as Universal's "greatest production to date." Newhard was receiving plaudits for his activity as a result of "stealing of the rubies."
- JAMES VAN TREES completed photography on the First National production, "The Hurricane," shooting the final scenes on location in the High Sierras.
- GEORGE SCHIFFERMAN was assigned to film "Cameo Kirby" for Fox, which starred John Gilbert.
- RAY RUMMAHAN who was with Technicolor, was conducting an exhaustive search of various motion picture studios in an effort to locate a valuable tripod head that had disappeared from Metro Studios while he was shooting there.
- JOHN STUMER was photographing "Wanted, a Horse" at Universal, starring Baby Peggy and Sheldon Lewis and directed by King Baggot.
- PHIL ROSEN directed and Robert Kurland and H. Lyman Broening photographed "The Dramatic Life of Abraham Lincoln," for the RKO-Lincoln Film Co. Kurland and Broening shot over 200,000 feet of film for the production.
- SCOT POLITO, aided by Jackson Rose, was shooting important scenes at First National for Edwin Carew's production of "The Bad Man," starring Hollbrook Karns.
- JOHN DORRIS, with headquarters in Riga, Latvia, was shooting documentary and newsreel footage for various American film companies on special assignment.

activity and imagination, imbues the production with the pictorial elements that make the picture click on the screen. It is only logical, then, to include him in the preliminary planning. One does not have to be bright to realize that the studio's

business is to make and sell a product—motion pictures. The Director of Photography is the one who makes the picture. Give him more respect and responsibility and the most progressive movement in our great industry will result. ***

THE CAMERA'S POINT OF VIEW

(Continued from Page 273)

impression. It places the audience in an elevated position in reference to the players in the scene. Depending upon how the trend of the action develops, it can cause the audience to look at the players either with contempt or compassion—but in any case, the characters in that scene will appear humble to the audience.

Putting it into concrete terms, let's suppose that there is a sequence in which a man is being pursued by bloodhounds. If the action were filmed from the conventional eye-level angle we might not feel especially sorry for the man, because it is plain to see that he is bigger than the dogs. In our minds we assume that because he is the dominant figure in the scene, he will probably win out against the odds.

On the other hand, let's view the same scene from a high angle. Now the difference in size between the man and the dogs is less obvious. He becomes a humiliated thing, miserably exposed to the camera's commanding eye—and the audience is made to feel superior to him, in a compassionate sort of way.

The high angle, then, is used to best advantage when one wishes to make the audience feel superior to (or feel sorry for) the players in the scene situation. Aside from its psychological aspect the high-angle shot gives a more comprehensive view of the situation, and creates a lofty perspective that is especially valuable in introducing a new locale.

The Low Angle Shot. Departing from the conventional eye-level shot in the opposite direction, we find the low-angle to be one of the most dramatic points-of-view available to the cameraman. The basic effect of the low-angle is completely different from that of the high-angle, since it tends to exaggerate the importance of the subject which it portrays.

The low-angle forces the perspective of the scene, so that a character thus shown seems to be taller than he really is, and can be made to actually loom into the composition. For this reason he more or less dominates the audience psychologically and places it on the defensive. Thus, the low angle shot is especially effective in sequences where a menace is to be portrayed, or where the influence of the character is to be built up for a particular reason of plot. Films with a sinister or mysterious theme benefit especially from angles of this type.

In a sense, it can be said that a low-angle is an intimate sort of angle, because it often serves to bring the audience more completely into the atmosphere of the scene. Let us suppose, for example, that a character is shown fleeing from the police by crawling through some undergrowth. An eye-level angle of the scene would show the details of the scene quite clearly, but would inspire very little emotional reaction from the audience. On the other hand, if the same action were shot from a low angle, the fugitive would come crawling right up into the lens where the audience could see the tension in his eyes. It would be almost as if the spectators were in the actual locale with him, experiencing the same emotions.

Another function of the low-angle shot—and one which is quite effective—is that of pointing up the compositional importance of a commonplace subject. A radio tower, for example, is just a radio tower when viewed from a straightforward angle—but shot from a low angle, it becomes an imposing monument of steel towering into the sky.

Occasionally, by adopting a low angle, the cameraman can eliminate distracting backgrounds and show his subject to best advantage against the sky. Or, as a variation of this technique, he can create effective composition or symbolism by shooting the subject from a low vantage point against a dramatic background. In any event, the low angle is a very striking point-of-view if used correctly—and not too often.

Framing Your Subject. When a subject is a scene is framed by another object, a direct relationship is established between that object and its locale. A house framed by trees, for example, is no longer just a house—but part of the landscape.

One of the most effective compositional devices which the cameraman has is the shot in which background subjects are framed by an object in the foreground. This type of shot gives added depth and perspective to the scene and tends to draw the audience into the action.

Photographically, such scenes are a bit more tricky to shoot, since they require a great depth-of-field if both planes of composition are to be rendered in acceptable focus. This means that a wide-angle lens should be used, with sufficient illumination to allow the lens to be stopped down as far as possible.

The framing of a scenic shot with a person in the foreground provides a fine measuring stick for size and distance. If the focus must favor one of the two subjects, it should usually be the one in the background, or the one that is the most important in the scene.

Point-of-view in movies depends greatly upon the perspective of the lens used—which, in turn, depends directly upon the focal-length of the lens.

The standard lens (1 inch for 16mm. camera) produces a so-called normal perspective. That is, it covers practically the same angle of view as the human eye. It shows the subject clearly and without any exaggeration of line or proportion.

The wide-angle lens, on the other hand, forces the perspective of the scene, makes things look larger than they actually are, exaggerates apparent distances, and allows for dramatic composition because of its inherently great depth-of-field.

The telephoto (or long focal-length) lens tends to flatten out the separate planes of the scene, while magnifying the subject. Because of its short depth-of-field, it is a fine lens for close-ups, since it shows distracting backgrounds out of focus.

These characteristics should be kept in mind when the selection of a lens is being made for a particular scene. The choice of lenses will have much to do with the point-of-view from which the scene is shown.

Let us suppose that you are filming a sequence in a long corridor and you wish to point up the setting itself. If you use your standard lens at eye-level, the scene will be photographed with normal perspective, and the corridor will be nothing more than an unobtrusive background for whatever action develops. But if you photograph the same scene from a low vantage point, using a wide-angle lens, the whole point-of-view of the scene will be changed. The perspective of the corridor will be forced so that it will appear to be twice as long as it really is. The lines of perspective will open up to a distant point. The tilt created by the low angle will cause straight lines to lean just enough to give the setting a dramatic appearance. Figures in the scene will seem to loom forcefully into the composition. What was once an ordinary scene is now a dramatic, suspenseful situation. This sort of set-up, of course, should only be used when the mood of the story demands such an atmosphere—never just for the sake of novelty.

In most movie scenes, the camera becomes a spectator, detached from the action, recording what is happening from whatever vantage point offers the best view. But occasionally the camera adopts the viewpoint of one of the characters and we see a bit of the action as it looks

to him. In such a case we say that the camera is subjective.

The subjective approach is just about the ultimate in "point-of-view," since it practically puts the audience in the other fellow's shoes. Through the personal eye of the subjective camera, we can see how the world looks to a man running through a forest, falling through space, or striding on the floor. One or two very striking phonographs have been made using the subjective approach throughout. Many others have used it successfully in special scenes or sequences. Correctly motivated, it is one of the most dramatic devices the cameraman can employ.

In order to be most effective, the subjective shot must be clearly pointed up by the scenes that precede it. The audience must always know through the eyes of which spectator it is viewing the scene. This can be most definitely established by building up to a close-up of the character looking into the lens or just off-screen, and then cutting immediately to a shot of what he sees and how he sees it.

The most obvious use of the subjective treatment is to duplicate an unusual optical state such as intoxication or dizziness, but it can also be used for dramatic or comic effect. For example, suppose you have a sequence in which a tall man is shown talking to a child. The relative sizes of the two persons are first established by a straight-forward shot. Next, the camera adopts the viewpoint of first one, and then the other. The man is photographed from a low angle, as he would appear to the child looking up at him. Similarly, the child is photographed from a high angle to simulate the man's point-of-view. Immediately the extreme difference in size is pointed up.

The important consideration in the use of subjective shots is to make sure they fit into the story, are clearly motivated by the shots that precede them, and are not used too often. A subjective shot abruptly thrown into the sequence with no preparation or logical reason, calls attention to itself as a device and therefore detracts from the action.

Camera "point-of-view," in the final analysis, depends primarily upon the cameraman's choice of angle in a specific scene or sequence. In any event, he must match the viewpoint of his camera to the mood and pace of the story, select angles that clearly show the action, and show what there is to be shown in a fresh and original way. The possibilities are almost unlimited and the wise cameraman, be he professional or amateur, is the one who takes the time and thought to give his camera "point-of-view." ★ ★ ★

"Goerz American"

PRECISION PHOTO-LENSES

An American Product Since 1899

will give you a lifetime of
preferable satisfaction

GOERZ DAGOR F6.8

The famous universal all-purpose lens, color-corrected, wide-angle, convertible—for ordinary, scientific, commercial and amateur work, scenic views, groups, banquets, color film, copying, enlarging.

GOERZ SUPER DAGOR F8

The wide-angle lens, greatly extended coverage, convertible.

GOERZ DOCMAR F4.5

The fastest speed lens, color-corrected, convertible for news, sports, portraits, general work, color film.

GOERZ ARTAR F9 TO F16

The apochromatic precision lens for color separation with perfect register in the final process also for black and white commercial work.

GOERZ GOTAR F6.8, F8, F10

The lens for black and white, process and commercial work, copying and enlarging.

GOERZ HYPAR F2.7, F5

GOERZ APOGEE F2.3

The movie lenses with microscopic definition.

GOERZ MOVIE CAMERA ACCESSORIES

Order them your dealer now
for delivery as soon as possible

The C. P. GOERZ AMERICAN
OPTICAL COMPANY

Office and Factory

317 EAST 34 ST., NEW YORK 16, N. Y.

AG-*

RUBY CAMERA EXCHANGE

Rents . . Sells . . Exchanges

Everything You Need for the PRODUCTION & PROJECTION

of Motion Pictures Provided
by a Veteran Organization
of Specialists

35 mm. 16 mm.

IN BUSINESS SINCE 1910

729 Seventh Ave., New York City
Cable Address: RUBYCAM

Current Assignments of A. S. C. Members

Members of The American Society of Cinematographers were engaged as Directors of Photography in the Hollywood Studios during the month of June, as follows:

Columbia

- **HENRY JEROME**, "Song of Socks," (Technicolor) with Bobo, Gail Russell and Thurston Bell. Director: Albert Rogell
- **CHARLES LAWTON**, "The Loves," with Cornell Wilde and Patricia Knight. Director: Douglas Sirk
- **VINCENT FREER**, "Triple Threat," with Gloria Henry and cast of All-American foot ball stars. Director: Jean YVES
- **RICK WIMPEY**, "Son of Mountain Melody," with Ray Asch and Smokey Mountain Boys. Director: Ray Nazaro

Eagle-Lion

- **WILLIAM H. GREEN**, "The Big Cat," (Technicolor) with Len McLambert and Peggy Ann Garner. Director: Phil Karlson
- **JOHN ALTON** and **GUY ROE**, "Red Station of the Rockies," (Cinecolor) with Jeanette Hecker and Arthur Franz. Director: Ralph Murphy

Independent

- **GRIGG TOLAND**, "Enchanted," (Goldwyn RKO) with David Niven, Teresa Wright and Felicia Kaye. Director: Irving Reis
- **GEORGE BARNES**, "The Numbers Game," (Roberts Productions, Enterprise Productions) with John Garfield and Beatrice Pearson. Director: Alphonse Polonsky
- **JAMES LAPUL**, "Some Rain Must Fall," (re-released "Cover-Up"), (Strand Prod. U. A.) with William Broun, Dennis Duggan and Barbara Brenner. Director: Alfred E. Green
- **JACKSON ROSE**, "Bachelors," (Italian Prod. M. R.) with Tom Canning and Margaret Hamilton. Director: Edward E. Cobb
- **WYMOND HICKS**, "Talia," (Technicolor) "Walter Wanger Prod. for F. B. R." with Susan Hayward and Robert Preston. Director: Stuart Heisl
- **KARL STRUSS**, "Tadpole and the Arrow of Death," (Sel. Lerner Prod.) with Lee Barber and Beulah Joyce. Director: Lee Sholen
- **ERNEO LAZZO**, "The Lucky Snail," (Amusement Enterprises—U. A.) with Dorothy Lamour and Brian Donlevy. Director: Leo Foster
- **LEE GARNES**, "The Luckiest Girl in the World," (Enterprise) with Barbara Bel Geddes. Director: John Berry
- **BENJAMIN KLING**, "Max Mink of 1949," (Warner Doh.) with Jenny Lydon and Lou Collet. Director: Glenn Tyne
- **WILLIAM MILLER**, "Beady Eye," (Lerner Comm. U. A.) with George Chae and Harpo Marx and Hona Money. Director: David Miller
- **BOB POLITT**, "If This Be My Destiny," (Rochester-SRG) with Vally and Robert Marham. Director: Irving Kipper
- **HENRY SHARP**, "Smile It Rich," (Jack Weather-A. A.) with Red Catterton and Bonita Granville. Director: Lester Schelder

M-G-M

- **CHARLES REINER**, "Words and Music," (Technicolor) with Judy Garland and Mickey Rooney. Director: Norman Taurog
- **ROBERT SUTHERN**, "Act of Violence," with Van Heflin and Janet Leigh. Director: Fred Zinnemann

- **JOSEPH RITTENBERG**, "The Babe," with Robert Taylor and Ava Gardner. Director: Robert Z. Leonard
- **CHARLES SCHOFENBATH**, "Lustre Women," (Technicolor) with Jane Alynne, Margaret O'Brien, Phil Taylor, Jane Leigh and Peter Lawford. Director: Moriya LeRoy

Monogram

- **HARRY NEUMANN**, "Shells From Medicine Box," with Johnny Mack Brown, Raymond Hinton, Evelyn Finley. Director: Lambert Milne
- **WILLIAM SCHNER**, "Beverly Conestoga," with the Dead End Kids. Director: Reginald Le Borg

Paramount

- **DANIEL FAPP**, "The Mirror," with Gloria de Haveland and Sir Ralph Richardson. Director: William Wyler
- **RAY KINERMAN**, "Secrets of London," (Technicolor) with William Holden, Myra Donald Grey, William Bendis and cast. Director: Leslie Parnau

R-K-O

- **ROBERT DE GRASSE**, "Belvedere Escapade," with Robert Young, Shirley Temple and John Agar. Director: Richard Wallace
- **HARRY WILD**, "Inheritance," with Victor Mature and Lucille Ball. Director: Jacques Tourneur

20th Century-Fox

- **JOE MC DONALD**, "Yellow Sky," (Technicolor) with Giggiy Pink and Anne Baxter. Director: William A. Wellman
- **ARTHUR MILLER**, "Three Wives," with Jeanne Cras, Linda Darnell, Ann Southern and Jeffrey Lynn. Director: Joe L. Mankiewicz
- **HARRY JACOBSON**, "Chicken Every Sunday," with Dan Dailey, Alan Young, and Gloria Holden. Director: George Seaton
- **CHARLES CLAMBE**, "Soul," (Technicolor) with Maig Stevens and Colleen Gray. Director: Lou King
- **JOSEPH LA SHUELLE**, "The Fan," with Jeanne Cras and George Sanders. Director: Otto Preminger

Universal-International

- **RUSSELL MITTY**, "You Gotta Move Happy," (Technicolor) with Joan Fontaine and James Stewart. Director: H. C. Potter
- **ARTHUR EDSON**, "The G-Flyer," (East-bird Co. Prod.) with Douglas Fairbanks Jr. and Helen Carter. Director: Arthur Penner
- **WILLIAM DANIELS**, "Tudor Hospitality," with Claudette Colbert and Fred MacMurray. Director: Claude Boyton
- **FRANK FLANER**, "Crim Crim," with Bart Lancaster and Yvonne de Carlo. Director: Robert Siodmak
- **IRVING CLAMBERG**, "Black Velvet," (Technicolor) with Anne Blyth and George Brent. Director: Gower Hounsley

Warner Brothers

- **ROY MARLER**, "Silver Sings," (Technicolor) with Jane Hawn and Ray Bolger. Director: David Butler
- **TED MCCOMB**, "Josef Brude," with Bette Davis and Robert Montgomery. Director: Bretaigne Witman

- **WILFRED CRUIK**, "Tigher Squadron," (Technicolor) with Edmund O'Brien, Robin Stock and cast. Director: Russell Wright
- **KARL FREUND**, "South of St. Louis," (Technicolor) (Unrated Sweet Peas) with Joel McCrea and Alton Sauth. Director: Ray Enright
- **ROY MARLEY**, "Night Bear," with Robert Douglas and Helen Wincott. Director: Flaminio Decker
- **ROBERT BURNS**, "The Four-headed," with Gary Cooper and Patricia Neale. Director: King Vidor

3000 FRAMES PER SECOND

(Continued from Page 269)

A 1/3-hp, 32-volt universal motor is used to drive the film moving mechanism, optical plate, and take-up spool. Overloading this motor up to 115 volts increases the speed beyond the normal range. This permits rapid acceleration and maximum speeds without damage to the motor since it is overloaded only for few seconds at a time.

Speed in frames per second is controlled by setting a stop on a brake drum, mechanically coupled to the motor. To limit acceleration, when the stop is reached, connected in series with the motor, applies a decreasing resistance as the motor comes up to speed and the pointer moves to the mark. At maximum settings, approximately 25 feet of film are required before the camera attains 80% of desired top speed. A motor shut-off switch dial cuts the current when the end of the film is reached and de-energization follows immediately.

In general, the speed at which the camera is to be operated is determined by the speed of the action pictured. Excess slow taking speeds increase the problem of adequate lighting for the short exposures involved. A handy formula for comparing camera speed is:

$$\text{Frames per second} = \frac{40 \times \text{Subject Speed}}{\text{Width of Subject Field}}$$

When subject speed is measured in inches per second and subject field is measured in inches. This formula, however, is based on the assumption that the subject moves in a plane parallel to the plane of the film. Where subject motion is directed toward or away from the camera lens, lower speed may be adequate.

The actual speed of any given action photographed may be timed in absolute units. An argon lamp, connected to normal 115 volt 60-cycle, produces light impressions on the film edge denoting each 1/120 second.

A synchronization switch dial is provided to enable the operator automatically to make or break an external electrical circuit after a portion of the film has

been run. This is useful particularly when a given action is to be photographed only after the camera has attained a predetermined speed.

Standard loading for the Kodak High Speed Camera is a 100-foot roll of specially spooled 16mm Cine-Kodak Super-XX Panchromatic Film. Where more exposure can be given, Cine-Kodak Super-XX Panchromatic Film yields a finer image. In addition to these Easman reversal films, Super-XX Panchromatic Negative Film may be used as can Kodachrome Film when ample light is available. Fifty-foot rolls of these materials are available on special order where 100-foot rolls are not needed.

Because of its light weight and compactness, the Kodak High Speed Camera has proved especially valuable in industry, both in design of high-speed equipment and in trouble shooting. Not only can the camera easily be transported anywhere in a shop, but—unlike flash discharge photography which must be carried out in subdued light—it may be used in normal room light or daylight and its picture cycle embraces a long enough period of time— $1\frac{1}{2}$ to 5 seconds—to depict the full cycle of the majority of high-speed industrial operations. Thus if a given part is malfunctioning the camera operator is assured that somewhere in his footage the failure will be recorded for study.

The importance of such visual studies cannot be overestimated. Industrial engineers and designers are constantly called upon to increase the speed at which machines and equipment may be operated. As a result, they need accurate knowledge of the time, space, and force relationships

which occur between parts that move too fast for visual observation.

Consequently, the Kodak High Speed Camera has been used to study such varied industrial problems as mechanical power transmission, metal casting and forming operations, the flow of coolants in metalworking, effects of vibration, electrical arcing, aircraft behavior, fuel injection, the mixing of fluids, and metal flow in welding. This list is by no means exhaustive.

The solution of a typical industrial problem through use of this camera involved a machine embodying a ratchet feed that was continuously out of service for replacement of the ratchet and pawl. Six times each second the pawl had to index a smooth 2½-inch ratchet wheel with 11 second allowed for engagement. Neither ratchet nor pawl was standing up under this service.

Motion pictures taken with the Kodak High Speed Camera showed the pawl bounding off the ratchet tooth so that maximum force was exerted when the contact was small. Naturally this caused the corner to wear rapidly. A change in the pawl shape to reverse the rebound force eliminated the trouble.

While pictures of this type are primarily intended for engineering use, they often may prove useful in sales promotional films to illustrate a particular point about a machine or process. Incorporating such footage in promotional films provides visual proof of engineering claims and leaves the prospective purchaser convinced that parts operate as intended. Proof of this nature offers a sales argument of real force. ★ ★ ★

TRANSITION LENS FOR TELEVISION

(Continued from Page 265)

as his automobile rolled up Pennsylvania Avenue toward him. Suddenly there was a renewed ovation from the crowds of spectators lining either side of the Avenue, and the President doffed his hat.

Walker instantly switched to his telephone lens, capturing a well-timed close-up of the President as he removed his hat and bowed, smiling, to the cheering throng. Years later a print of the reel containing this memorable footage was presented as a gift to the President's widow by the newsmagazine.

Subsequently, Walker continued his experiments with transition lenses, developing the automatic, multi-element zooming lens for both 35mm and 16mm cameras.

With the rapid development of television photography, the tele-camera and its peculiar problems attracted the attention of Joe Walker who makes it a point to keep abreast of every development in

photography—still, motion picture and video. He recognized the very same problems in television photography that had earlier beset the motion picture cameramen with the advent of sound.

In the early days of talking pictures, a lens was designed by Walker that would permit a quick transition from a long shot to a closeup, and vice-versa. It had two fields of view and was the forerunner of the present Zoomar lens. The original transition lens was used recently to good effect by Orson Welles in Rita Hayworth's "Lady From Shanghai."

It became a simple matter for Walker to adapt this lens for the longer focal length and greater covering power required by the television camera. While modern television cameras have multiple lens barrels affording all the facilities of varied motion picture cameras, actually the camera are seldom used in making



MARK ARMISTEAD
Cameras, Blimps & Bells
FOR RENT
1611 No. Forman
Hollywood 46, Calif.
Granite 6187

NEW MIKE BOOM

• Efficient • Inexpensive



FEATURING—

- 12" boom arm extension in two sections.
- Freely rotating coils.
- Sturdy bracketed stand.
- Completely portable.
- Immediately available.

Write for complete information
Price \$189.50

THE CAMERA-MART
70 WEST 45th STREET, N.Y. 15, N.Y.
CABLE ADDRESS: CAMERAMART
WORLD-WIDE SALES AND SERVICE

MOVIOLA
FILM EDITING EQUIPMENT
Used in Every Major Studio
Illustrated Literature on Request
Manufactured by
MOVIOLA MANUFACTURING CO.
1431 Cordon Street Hollywood 28, Calif.

BLACK AND WHITE • KODACHROME

TRADEGIG 8 to 16 REBUILD 16 to 8
DUPLICATES

GEO. W. COLEMAN LABORATORY, Inc.
164 N. Wacker Dr., Dept. A, Chicago 6, Ill.

transitional shot during shooting. Instead, two or more cameras are used on the set or even—such operating with lenses of different focal lengths—and cuts between cameras are effected electrically by the operator at the camera control panel.

Earlier it was found that transitions made by swinging the television camera lens turret created a side motion of the entire picture image on the screen that was very disturbing to the eye. So these television studio futurists go have the equipment, remedied this by using two or more cameras and cutting from one to the other, as prescribed in the script.

The answer to this problem, Walker foresees, was a lens that would afford a quick change from long shot to closeup without creating any disturbing visual effect on the video screen. And as television requirements, more often than not, were for a simple switch from long shot to closeup, or closeup to long shot—rather than a *zoom* effect—Walker's inventiveness enabled him to readily adapt his original two-image lens to television's needs. Subsequently the lens was appropriately trademarked the Duomar.

The Duomar has two different fields of view. The movement of a lever by the operator changes the field from long shot to closeup, or vice versa, with a pleasing, melting of the two scenes marking the transition, instead of the abrupt side motion "wiped" that occurs when the television camera's turret is employed for effecting transitions.

By moving the lever (indicated in photo by arrow No. 1) quickly, the result is an almost instantaneous "cut" from one field of view to the other. If the lever is moved moderately slow, a dissolving effect is obtained between the two.

Unlike the continuous zoom lens, of which Walker has made several for use in motion picture photography, the Duomar can be made in any lens speed and with a very high degree of optical correction. Speeds of $f/2$ have been found quite practical, however, in large television studios the speed of $f/4$ is sufficient for practically all purposes. Moreover, size and weight of the lens must always be considered. The faster the lens, the larger it must be.

The Duomar lens pictured here is 12 inches in length and the image range is between that of 8 and 16 inches focal length. The lens requires a lightweight bracket to support it before the camera. The bracket shown in the illustration is made of aluminum and is held in place by an extension which fits between the camera and the tripod head.

The Duomar is not an auxiliary lens. It replaces the regular television camera lenses. The range of the transition is preset by adjusting two collars mounted on a shaft paralleling the lever opening.

Early tests of the Duomar lens on the "Queen For A Day" and "Hearts Desire" video shows revealed that, in addition to operating the lens lever, the operator also had to adjust his camera simultaneously in order to keep the lens centered vertically on the scene or subject. Walker soon corrected this and now centering becomes automatic, the range of the zooming action being preset by adjusting a small knob immediately below the face of the lens, indicated by arrow "2" in lower photo on page 266.

The Duomar lens is fully patented. Harry Lubke, director of Television for Don Lee, and his video cameramen, Herman Smith were the first to employ it. Walker is making the lens available to any television company for experimental or regular program use. ★ ★ ★

GRAND OPERA IN 16MM.

(Continued from Page 274)

have the additional interpretive faculty of English dialogue and the fluidness and realism of screen presentation to simplify opera for every type of audience.

On the screen, the *aria* are sung in the native tongue of the original opera. The dialogue which precedes an *aria* is spoken in English and thus fully explains and sets the scene, the *aria* continues the mood.

Although this film marks grand opera's first "adaptation" to its new medium, Maurice Peluso says that it was not necessary to alter the original music or texts in any way, except for some of the lengthier musical compositions which were shortened to allow for more explanatory dialogue. But the essentials of the plot and music were not changed in the streamlining given the screen production.

The musical score and *aria* were pre-recorded by Metropolitan Opera star Emily Hardy, Frank Trentham, Giovanni Zovini and conductor Peluso. Those carrying principal roles on the screen sang and spoke their lines in accompaniment to playback of the original recording, but this was not recorded. The pre-recorded musical score and *aria* were dubbed in.

Although this was a 16mm film production, it was handled in the most professional 35mm manner. Both the technicians and cast were recruited from among regular studio workers. The casual observer accustomed to watching typical Hollywood studio production methods would hardly have noticed any differences in the procedure, except when the camera blimp was raised to reveal within it a Mitchell 16mm Professional camera instead of the familiar Mitchell 35. Since this camera is almost identical in design and operation to the 35mm, it presented no difficulties to our 35mm camera operator. ★ ★ ★

MUSIC FOR MOVIES

(Continued from Page 270)

against such music, because it happens to have been written as accompaniment for screen drama.

Composing and recording background scores is a highly specialized and rather intricate business. Heading the musical department of each studio is a musical director who supervises the creative efforts of anywhere from eight to twenty composers, arrangers and doctores. It is his task to assign various pictures to individual composers and to work with them in developing themes and orchestrating completed scores. Occasionally the musical director personally composes the score for an important picture, and quite frequently several specialists work together on a single score. One may write the score, another will arrange it for the orchestra, and still another will conduct the orchestra in actual recording of the music.

Although scoring procedures vary somewhat with particular studios, the basic techniques are similar. Usually the composer writes his themes while the picture is still on the sound stages or in the cutting room. When the picture is completed, every scene, action and bit of dialogue is accurately noted by a mechanical device, and the composer begins the operation of fitting his music *note-by-note* to the actual content of the film. Elaborate cue sheets enable him to precisely synchronize musical ideas to the celluloid.

The recording is done a *reel* at a time on the recording stage. The conductor re-hearses a large symphonic orchestra repeatedly, while watching the picture projected on a screen at the back of the stage. After several rehearsals a *cueing* of that portion is made, and as soon as one *reel* is sketched, the conductor goes on to the next. The utmost precision is needed to get the music to closely match the picture.

Max Steiner, regarded by many as the industry's foremost musical director, has evolved his own highly successful formula for film scoring. He maintains that "the ear must hear what the eye sees," and with this in mind he asks himself, when viewing a completed picture for the first time, "What does it sound like?" He then analyzes the main characters and situations of the story and composes a representative theme for each.

These themes are then turned over to a *cueing* expert who weaves out intricate cue sheets to match music with action. Mr. Steiner frequently composes what is known in the trade as "Mickey Mouse Music." More clearly defined, this is the kind of music that closely follows the action of the characters. If a player runs upstairs, the music does likewise—if he falls down, the music takes a tumble, also.

When this specialized *cueing* is done, the composer then completes the manu-

signs and interludes for each reel, after which the scene is turned over to the orchestrator so be arranged for recording. Mr. Steiner works closely with the arranger to make sure the desired instrumentation is created. He also sits in on the re-recording session (during which music is "mixed" with dialogue and sound effects) in order to more closely control the volume and modulation of the music in relation to the other sound elements.

Max Steiner has three won Academy awards for his scoring of "The Informer," "Now Voyager," and "Since You Went Away." His other outstanding scores include "Gone With the Wind," "Sergeant York," "Casablanca," "Mission to Moscow" and "Saratoga Trunk." His brilliant score for the motion picture, "Sue," has been given many concert performances by leading symphony orchestras. Mr. Steiner's musical themes are so melodic that several have been published as popular songs, notably the themes from "Now Voyager" and "Saratoga Trunk." He is one of the foremost proponents of background scores as music worthy of the concert hall.

Commenting on the aforementioned controversial issue, Mr. Steiner says "A major victory was won when producers came to realize that the score should not always be completely subordinate to the story. Formerly, it was unheard of that a score should be lengthened so that a musical idea might be more effectively developed. Now, if I need one more reel of action to complete what I have in mind I can usually get it. That is a definitely encouraging sign. ★ ★ ★

INFRARED FILM

(Continued from Page 253)

chilling of the features in *Fort Apache*, no makeup of any kind was used except in the infrared shots.

The shades of brown makeup will vary with the filter used, which should be a 25A, 25A, and, mostly, a 29F. Choice of filter will depend entirely on the background, sky and clouds. In several instances I used a 23A filter and then shot the scene to follow using a 29F filter, and succeeded in maintaining a balanced density in both long shot and closeup.

In using only the red filters it is well to remember that all reds in the scene are consequently highlighted in color and with a corresponding degree according to the filter used. All props normally containing red, such as flags, insignia, etc., should be replaced with dyes in which the red colors have been replaced by light or medium brown, and the filters for the shot carefully selected.

In balancing contrasting shots, the sky should also come in for careful evaluation in the selection of filter to be used for

long and close shots. A ground haze can cause serious trouble if shot at a back-light or back cross light. Where haze prevails, a few test shots developed on the spot, will indicate the best filter to use, and at the same time convince you of the value of infrared film for getting dramatic pictorial effects that would not be possible under the same conditions with any other emulsion.

For the 16mm movie maker, amateur or professional, infrared film offers many possibilities, both pictorial and timing-wise. Where the filmer has not the lighting facilities to photograph actual night shots, infrared and filters will enable him to photograph such shots in daylight. The 16mm professional will find many uses for the film to enhance production values—something he can easily prove by making a few test shots.

There is no definite emulsion speed indicated for infrared film for use in daylight. Only last month, I contacted Eastman's representative, who was visiting in Hollywood, and could get no definite information regarding this.

In checking my exposures, made during the past few years with this film, I established the following exposure table:

Exposure Meter	Reading	Filter Used	Exposure
General Electric	100 Foot Candles	25A	1/8
General Electric	100 Foot Candles	25A	1/8
General Electric	100 Foot Candles	29F	1/4
Normal Meter	100 Foot Candles	25A	1/8
Normal Meter	100 Foot Candles	25A	1/8
Normal Meter	100 Foot Candles	29F	1/4

—all of which indicates an emulsion speed of 8 for the film. This may vary greatly, however, depending upon the color of backgrounds and the density desired, so actual tests under given conditions, coupled with past experience should be your safest guide.

For the successful use of infrared film in photographing *Fort Apache*, considerable credit is due director John Ford, for without his understanding, cooperation and assistance, the dramatic, pictorial shots that mark the picture would not have been possible. Indeed, Ford was as eager as I to use the film and to leave nothing undone to insure the greatest possible results from it.

BULLETIN BOARD

(Continued from Page 260)

reveal details of the new film treatment, two film strips were screened for the group, one shot under normal conditions and the other deliberately under-exposed by one full stop and then subjected to the new process. Both strips screened with identical results.

S.M.P.E. reports that Carchodonk's film industry has established a new standard projection speed of 25 frames per second for 35mm sound film.



THREE PROFESSIONAL HIGH FIDELITY MACHINES USED TO COPY ALL COMPETITION

Cine-Pro SIXTEEN MM

FILM RECORDER

FILM PHONOGRAPH

TAPE RECORDER

Cine-Pro CORPORATION

106 West 44th Street, New York 18, N.Y. Telephone 2-1411

CONFIDENCE

PEERLESS FILM TREATMENT, sometimes known as "vaporizing," has enabled millions of prints to hold their good exhibition condition for beyond normal expectation. Extension of print life is more than ever important at this time, when shortages of new stock have made replacements so difficult to obtain. For 34 years PEERLESS has won the confidence of the motion picture industry as a symbol of protection.

Insist on PEERLESS FILM TREATMENT

Available at laboratories, count the most

Write for list of institutions and folders, "20 Questions".

PEERLESS FILM PROCESSING CORP.

Office: 145 W. 44th St., New York 18, N.Y.

Processing Plant: 130 W. 44th St., N.Y. 19

DIRECT 16MM SOUND

with MAGNET RECORDING SYSTEM

For the Producer of 16mm Business, Educational and Religious Films

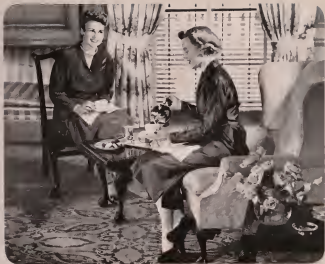
• Titles Numbered • Synchronized Studio

• Sound Recording • Photographic

• Duplicate Negatives • Color and Black

GEO. W. COLBURN LABORATORY, Inc.

164 N. Wacker Dr., Dept. A, Chicago 5, Ill.



Artist with chintz and Chippendale...

WHEN this room says "home, sweet home" to movie-goers, it also speaks in praise of its creator—the man who dressed the set so understandingly.

For his was the feeling for fabrics and furniture that gave the set its "lived-in" look... that made it so truly convey time and place, and catch the spirit of the actors' roles.

Whether an interior is modern or medieval, penthouse or "poverty row," the set dresser's artistry makes its atmosphere authentic.

An important contribution, this—and one that is reflected to the full by faithful photographic reproduction... unfailingly provided by Eastman's famous family of motion picture films.

EASTMAN KODAK COMPANY
ROCHESTER 4, N. Y.

J. E. BRULATOUR, INC., DISTRIBUTORS
FORT LEE • CHICAGO • HOLLYWOOD

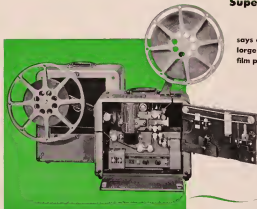


"Our tests showed

Film **sound**

Superior"

says one of
largest
film producers*



A MAJOR Hollywood film producer needed a number of 16mm sound film projectors. So a corps of technicians was assigned to testing five makes. The result? "B&H Film sounds are superior optically, electronically, and mechanically," the Chief Projectionist reported. Here are some of the findings he cited in support of that conclusion:

1. **Finest Pictures.** The B&H shutter results in a great deal less flicker. Lens is very sharp and of high quality. Mechanism appears to be precision-built.
2. **Superb Sound Quality.** Minimum machine noise, splendid functioning of exciter supply, latest amplifier design. Professional-type film gate, impedance drum, and associated mechanism eliminate speed variation and flutter.

3. **Easy to Use.** Controls are ideally located. Rewind is perfect.

4. **Easy to Service.** Amplifier, for example, can be removed and replaced by anyone in less than five minutes.

In choosing a 16mm sound film projector for your personal use, you probably won't have the time or inclination to make thorough comparative tests. But you can guarantee your satisfaction by selecting the projector that was where such revealing tests are made . . . the Bell & Howell Film sound. Every Film sound is guaranteed for life!

Bell & Howell Company, 7148 McCormick Road, Chicago 45 Branches in New York, Hollywood, Washington, D. C., and London.

*Name on request.

Presented Here by

Bell & Howell

And the 96 Largest Representatives of Professional Motion Picture Equipment in Hollywood and the World